Contaminated Land
Air Quality
Environmental Audit

SMITH GRANT Environmental Consultancy LLP

Partnership No: OC 300776

LAND EAST OF STONE CROSS LANE NORTH, LOWTON

Planning ref: A/12/77592

AIR QUALITY ASSESSMENT

For: Wainhomes Developments Ltd

February 2013

R1803-R01-v2

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1 Introduction

1.1 Wainhomes Development Ltd (WDL) has submitted an outline planning application to Wigan Council (WC) for up to 400 dwellings with associated infrastructure and open space on an area of land to the east of Stone Cross Lane North, Lowton. The planning application was supported by an Environmental Statement (ES), dated November 2012. WC has now requested that an air quality assessment is provided in support of the ES and planning application. WDL has accordingly instructed Smith Grant LLP (SGP) to undertake the necessary air quality assessment.

1.2 Site details are:

Table 1.1: Site Details

Address	Land east of Stone Cross Lane North, Lowton
National Grid Reference	361600 397100
Local Authority	Wigan Council (WC)
Site Area	13.09ha
Nature of Current Site	open farmland with farm buildings
Proposed Development	outline planning application forms Phase 1 of the development and comprises 400 dwellings; overall future development is 670 dwellings

1.3 The following report assesses the impact of the proposed development on local air quality. In particular, it considers the potential for air quality and dust effects at receptor locations during the construction of the new development and from the additional traffic generated by the development, along with local air quality effects on new receptors to be introduced by the development. The report describes the methods used to assess the impacts, the baseline conditions currently existing at the site and surroundings, the potential direct and indirect impacts of the development arising from construction dust and vehicle emissions, and the mitigation measures required to prevent, reduce, or offset the impacts and the residual impacts.

1.4 The principal aspects considered during this assessment are:

- **nuisance dust and particulate matter**: fugitive dust and particulate matter (PM_{10}) arising during the construction phase;
- **road traffic emissions**: potential impacts of road traffic emissions (NO_2 and PM_{10}) on local air quality during the operational phase.

1.5 The site subject to the outline planning application forms part of a wider development site. The construction phase assessment has been undertaken for the specific application site. The operational assessment however has been undertaken through reference to the Transport Assessment undertaken by Royal Haskoning and associated traffic data in support of the planning application, and has taken into account the wider development of 670 dwellings.

2 Technical and Legislative Context

2.1 Technical Context

2.1.1 The airborne pollutants of principal concern in connection with demolition and construction activities and which are considered in the following assessment are fugitive dust and particulate matter less than less than 10µm (PM_{10}). The pollutants of principal concern in connection road traffic and considered in the following assessment are nitrogen oxides (NO_x), nitrogen dioxide (NO_2) and particulate matter less than 10µm (PM_{10}).

2.1.2 The term 'dust' typically refers to all airborne particulate matter and can be catagorised on the basis of the size of particles[1]. The British Standard BS6069:1994 defines dust as particulate matter in the size range 1µm to 75µm in diameter. Dust can give rise to both soiling effects through dust deposition and human health effects through suspended particulates. Dust soiling will arise from the deposition of particulate matter (PM) in all size fractions, but will be associated mostly with particulate matter greater than 30µm. The ambient PM relevant to health outcomes will be that measured as $PM_{10,}$ which roughly equates to the mass of particles of less than 10µm in dust that are likely to be inhaled in the thoriac region of the respiratory tract. Recent information indicates that $PM_{2.5}$ (those particles of less than 2µm and which form a proportion of PM_{10}) gives a stronger association with the observed ill-effects. $PM_{2.5}$ is referred to as fine particulates and $PM_{2.5-10}$ as the coarse fraction of particulate matter. The majority of construction dust is larger than 10 µm and hence the key potential impacts are associated with soiling effects.

2.1.3 Road transport is the main source in the UK of oxides of nitrogen (NO_x; comprises nitrogen dioxide (NO_2) and nitric oxide (NO)). NO itself is not considered harmful to human health. However, on release to the atmosphere it is usually rapidly oxidises to NO_2 which is associated with adverse effects on human health causing inflammation of the lungs at high concentrations. Long term exposure to NO_2 can affect lung function and

[1] Institute of Air Quality Management (IAQM): Guidance on the Assessment of the Impacts of Construction on Air Quality and the Determination of their Significance, December 2011

respiratory symptoms. Road transport is also a source of primary particulate matter (PM_{10} and $PM_{2.5}$) both as direct emissions through vehicle exhausts and as indirect emissions through tyre and brake wear, re-suspension of particulate matter on the road and road wear (mechanical abrasion and corrosion).

2.2 UK Legislation

Air Quality Standards Regulations 2010

2.2.1 The Air Quality Standards Regulations 2010 implement the 2008 EU ambient air quality objective (2008/50/EC) which sets legally binding limits for concentrations in outdoor air for major air pollutants that impact public health including particulate matter (PM_{10} and $PM_{2.5}$) and nitrogen dioxide (NO_2).

2.2.2 In the UK, responsibility for meeting air quality limit values is devolved to the national administrations in Scotland, Wales and Northern Ireland. The Secretary of State for Environment, Food and Rural Affairs has responsibility for meeting the limit values in England and the Department for Environment, Food and Rural Affairs (Defra) co-ordinates assessment and air quality plans for the UK as a whole.

UK Air Quality Strategy 2007[2]

2.2.3 The UK Government and the devolved administrations are required under the Environment Act 1995 to produce a national air quality strategy (AQS). This was last reviewed and published in 2007. The strategy sets out the UK's air quality objectives and policy options to improve the air quality in the UK.

2.2.4 Part IV of the Environment Act 1995 and Part II of the Environment (Northern Ireland) Order 2002 requires local authorities in the UK to review air quality in their area and designate Air Quality Management Areas (AQMAs) if improvements are necessary. Where an air quality management area is designated, local authorities are also required to work towards the Strategy's objectives prescribed in regulations for that purpose. An air quality action plan describing the pollution reduction measures must then be put in place. These plans contribute to the achievement of air quality limit values at local level.

2.2.5 The AQS objectives for NO_x, NO_2, PM_{10} and PM2.5 are detailed in the following table:

[2] DEFRA, (2007), *The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, 2007*

Table 2.1: Air Quality Objectives (AQOs)

pollutant	objective	date	comment
NO_2	40 µg/m^3, annual mean	31 December 2005	
	200 µg/m^3, hourly mean, not to be exceeded more than 18 times per annum	31 December 2005	
NO_x	30 µg/m^3, annual mean	31 December 2000	protection of vegetation and ecosystems
PM_{10}	40 µg/m^3, annual mean	31 December 2004	
	50 µg/m^3, 24 hour mean, not to be exceeded more than 35 times per annum	31 December 2004	
$PM_{2.5}$	25 µg/m^3, annual mean	2020	new, not legally binding
	15% reduction, urban background	2010 - 2020	target, UK urban areas

Notes: The Regulations refer to locations where members of the public are regularly present. The AQOs should apply as follows:

Annual mean: all locations where members of the public might be regularly exposed; including facades of residential properties, schools, hospitals, care homes etc

24-hour and 8-hour means: all locations where the annual mean objectives apply together with hotels and gardens of residential properties

1-hour mean: all locations where the annual mean, 24-hour and 8-hour means apply; also kerbside sites, parts of car parks, bus stations and railway stations which are not fully enclosed and any outdoor locations where members of the public might reasonably be expected to spend 1 hour or longer.

Dust Standards and Control

2.2.6 'Dust' as such is not regulated as a pollutant under the Air Quality Strategy 2007 or Air Quality Regulations 2010. Controls of soiling and nuisance impacts are typically achieved through conditions within planning permissions and / or environmental permits requiring the implementation of a dust management plan to prevent amenity impacts. For industrial and trade premises that do not require an Environmental Permit to operate dust is controlled under Part III of the Environmental Protection Act 1990 (EPA 1990). Nuisance is defined as *'any **dust**, steam, smell or other elluvial arising on industrial or trade or business premises and being prejudicial to health or a nuisance'*.

2.2.7 There are no UK statutory or recommended levels of dust deposition which constitute an acknowledged nuisance. Public concerns in relation to dust include the rate of deposition and / or the level of dustiness. Nuisance may be alleged when the dust coverage on surfaces is visible in contrast with other cleaner areas, especially if it occurs regularly. Severe nuisance is likely to be alleged when dust is perceptible without reference to a clean surface. The possible onset of nuisance from a particular source is said to occur

when dust deposition becomes noticeable, typically at a level which is 2 - 3 times background levels.

2.3 National Planning Policy and Guidance

National Planning Policy Framework 2012[3]

2.3.1 The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how these are expected to be applied. Paragraph 2 of the Framework states that:

'*Planning law requires that applications for planning permission must be determined in accordance with the development plan, unless material considerations indicate otherwise. The National Planning Policy Framework must be taken into account in the preparation of local and neighbourhood plans, and is a material consideration in planning decisions. Planning policies and decisions must reflect and where appropriate promote relevant EU obligations and statutory requirements.'*

2.3.2 The Framework provides some general guidance to local authorities on taking air pollution into account in planning policies and decisions. Paragraph 109 of the Framework states:

'The planning system should contribute to and enhance the natural and local environment by…..preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, ***air,*** *water or noise pollution, or land instability.'*

2.3.3 Annex 2 of the NPFF defines pollution as '*anything that affects that quality of the land,* ***air****, water or soils, which might lead to an adverse impact on human health, the natural environment or general amenity. Pollution can arise from a range of emissions, including smoke, fumes, gases, dust, steam, odour, noise and light'*.

2.3.4 In addition, paragraph 124 of the Framework states:

'Planning policies should sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas. Planning decisions should ensure that any new development in Air Quality Management Areas is consistent with the local air quality action plan.'

2.3.5 No further specific guidance is currently provided in the NPPF or the supporting technical guidance. The additional guidance provided to local authorities on the NPPF set out in

[3] Department for Communities and Local Government, (March 2012), *National Planning Policy Framework*

the Technical Guidance to the National Planning Policy Framework[4] specifically deals with development in areas at risk of flooding and mineral extraction.

LAQM Policy Guidance LAQM.PG[09][5]

2.3.6 LAQM.PG[09] provides policy guidance to Local Authorities in carrying out their local air quality management (LAQM) duties under Part IV of the Environment Act 1995 (EA 1995) to achieve implementation of the AQS. The policy guidance outlines the LAQM process including the process for designating AQMAs. The guidance requires that local authorities integrate air quality considerations into the planning process at the earliest possible stage.

LAQM Technical Guidance LAQM.TG[09][6]

2.3.7 LAQM.TG[09] provides detailed technical guidance to Local Authorities in carrying out their LAQM duties under the Part IV of the EA1995 and sets out the process to be used in reviewing and assessing air quality in their areas. LAGM.TG[09] provides detailed guidance in undertaking updating and screening assessments, and detailed assessments, and how to undertake monitoring and modelling in support of these assessments.

2.4 Local Planning Policy

Wigan Replacement Unitary Development Plan 2006[7]

2.4.1 In 2006 Wigan Council adopted the Wigan Replacement Unitary Development Plan (UDP) (for details reference should be made to ES Chapter 6). The UDP is currently the sole development plan for the whole of Wigan Borough and provides a framework to encourage and stimulate appropriate new development, control the location and quality of development and safeguard environmental quality.

2.4.2 Policy EV1B of the adopted Strategy (2006) states:

"The council will reduce pollution and the effects of pollution by not permitting development which would result in unacceptable levels of air pollution or would have an unacceptable effect on air quality, particularly in or adjacent to the Air Quality Management Areas declared by the Council under the Environment Act 1995. Sensitive development will not be allowed in areas of unacceptable air quality"

Development and Air Quality Supplementary Planning Document, 2007[8]

[4] Department for Communities and Local Government, (March 2012), *Technical Guidance* to *National Planning Policy Framework*
[5] DEFRA, (February 2009), *Local Air Quality Management, Policy Guidance*,
[6] DEFRA, (February 2009), *Local Air Quality Management Technical Guidance LAQM.TG[09]*
[7] Wigan Council, Wigan Replacement Unitary Development Plan, April 2006

2.4.3 The primary function of the Development and Air Quality Supplementary Planning Document is to safeguard the environment by encouraging sustainable development that balances and integrates economic, social and environmental benefits. The document provides guidance to developers on undertaking air quality assessments along with mitigation and compensating measures relating to the significance of the air quality impact associated with a development.

Greater Manchester LTP2 Air Quality Strategy and Action Plan 2006[9]

2.4.4 The Greater Manchester Air Quality Action Plan 2006 has been developed to cover the Greater Manchester area and includes Wigan. The overall aim of the plan is to reduce the effects of poor air quality on the health of people in Greater Manchester. The plan was developed jointly with the Local Transport Plan owing to the fact that the largest proportion of air pollution (in particular nitrogen dioxide) directly experienced by people in the urban areas of the County arises from road traffic.

2.5 National Best Practice and Guidance

EPUK: Planning for Air Quality[10]

2.5.1 The EPUK document provides specific non-statutory guidance on air quality and the planning system for new development. The guidance clarifies when an air quality assessment is required, what it should contain and how impacts should be described and assessed. In addition, the guidance sets out a recommended approach to assess the significance of the air quality impacts, taking into account advice issued by the Institute of Air Quality Management (IAQM)[11].

IAQM: Guidance on the Assessment of the Impacts of Construction Dust on Air Quality and the Determination of their Significance[12]

2.5.2 The IAQM document provides specific non-statutory guidance on the assessment of the impacts of dust and fine particulate matter (PM_{10}) from demolition and construction activities.

The GLA and London Councils: The Control of Dust and Emissions from Construction and Demolition, 2006[13]

[8] Wigan Council, Development and Air Quality, Supplementary Planning Document, September 2007
[9] Preston City Council (PCC), (2009) *Air Quality Action Plan*
[10] Environmental Protection UK (EPUK), (2010), *Development Control: Planning for Air Quality (2010 Update)*
[11] Institute of Air Quality Management (IAQM), (2010), *Position on the Description of Air Quality Impacts and the Assessment of their Significance*
[12] Institute of Air Quality Management (IAQM), (December 2011), *Guidance on the Assessment of the Impacts of Construction on Air Quality and the Determination of their Significance*
[13] Greater London Authority and London Councils, (November 2006), *The Control of Dust and Emissions from Construction and Demolition, Best Practice Guidance*

2.5.3 The GLA and LC Best Practice Guidance outlines measures for the control of dust and emissions from demolition and construction activities. Although written for use by the London local authorities it provides a consistent approach covering all aspects of dust control and emissions from construction activities that is applicable throughout the UK.

3 Assessment Methodology

3.1 Study Area

3.1.1 The Study Area includes the site and immediate environs and the wider key transport routes. The area has been defined through reference to the Transport Assessment prepared by Royal Haskoning (Transport Assessment, 24 October 2012, 9W7990, issue R00F). The Study Area includes those roads and major junctions that are considered to be sensitive to an increase in volumes of traffic, and hence may also experience increases in vehicle emissions as shown on Drawing D01.

3.2 Surveys

3.2.1 In undertaking the air quality assessment, SGP carried out the following activities:

- site visit to view the site and its setting,
- review of development proposals,
- review of baseline air quality,
- review of WC air quality reports and data,
- review of wind speed and direction statistics for Woodford Meteorological Station,
- review of current and post-development traffic data and transport assessment,
- assessment of traffic exhaust emissions using the ADMS-Roads model,
- construction dust assessment,
- provision of recommendations for mitigation, and
- assessment of residual impacts.

3.2.2 The site visit was undertaken by Katrina Hawkins, Partner, SGP, and Dewi Lloyd, Associate on the 31st January 2013. At the time of the site visit the weather was clear, 2°C and dry.

3.2.3 The baseline data has mainly been gathered through a desk top study and site visit. No additional survey or field work has been undertaken as part of this assessment. In undertaking the assessment reference has been made to the following principal sources of information:

Table 3.1: Information Sources

date and reference	author and source	purpose and information content
background and topographical information		
Sheet 109, Manchester	Ordnance Survey (OS) Landranger, 1:50,000	general mapping information including topography, ground features, rights of way, communications etc
Google Earth (imagery date 2009)	aerial photography	site setting
www.environment – agency.gov.uk; January 2013	Environment Agency	general information on industrial pollution sources
www.magic.gov.uk; January 2013	multi-agency	web-based interactive map containing information on nature conservation areas
air quality information		
2010 and 2011 Air Quality Progress Report for Wigan Council, December 2011 (and earlier reports)	Wigan Council	update of local authority air quality monitoring and assessment
www.aqma.defra.gov.uk; January 2013	DEFRA	details and maps of AQMAs throughout UK
www.defra.gov.uk; January 2013	DEFRA	Local Authority air quality management support; background pollutant mapping

3.2.4 Detailed traffic data for the Study Area has been provided by Royal Haskoning.

3.3 Key Consultations

3.3.1 Consultations were undertaken with Diana Bell, Senior Scientific Officer, WC to agree the scope and methodology (Appendix A – e-mail correspondence to D Bell).

3.4 Construction Phase Assessment

3.4.1 The assessment of the air quality impacts due to the generation and dispersion of dust and PM_{10} during the construction phase has been undertaken in accordance with the current guidance issued by the IAQM[10]. The guidance describes a qualitative assessment methodology to assess the risks of dust and PM_{10} effects from demolition, earthworks and construction activities and from trackout and provides guidance for assessing the significance of the effects. The assessment takes into account the proposed site activities, scale of the site, proximity of sensitive receptors, local topography and the prevailing local wind direction.

3.4.2 The impact of fugitive dust at a receptor will depend on the inherent sensitivity of the receptor and the perception of the acceptability of the effects of dust. Receptors may vary in their sensitivity to nuisance dust as follows:

Table 3.2: Sensitivity of receptors to nuisance dust

sensitivity		
high	**medium**	**low**
hospitals and clinics	schools	farms
retirement homes	residential areas	light and heavy industry
hi-tech industries	food retailers	outdoor storage
painting and furnishing	glasshouses and nurseries	
food processing	horticultural land	
painting and furnishing	offices	

3.4.3 In accordance with the IAQM guidance the dust assessment considers potential receptors within 350m of the boundary of the application site, 100m of the route likely to be used by construction vehicles on the public highway and up to 500m from the site entrance as shown on Drawing D02.

3.4.4 In addition reference has been made to the GLA and London Council's guidance[9] which provides mitigation options and best practice guidance to reduce emissions.

3.5 Operational Phase Assessment

3.5.1 The assessment of vehicle emissions during the operational phase has been undertaken in accordance with the EPUK guidance[7].

3.5.2 The roads requiring detailed assessment were determined through an initial screening assessment with reference to guidance provided by EPUK[7] and DMRB[14]. This took into account the predicted changes in traffic flows along the roads and junctions within the transport assessment study area and locations of sensitive receptors.

3.5.3 The following criteria were used to determine potentially affected roads:

- significant change in AADT or peak traffic flows >10% outside an AQMA;
- significant change in AADT or peak traffic flows >5% within an AQMA;
- road alignment changing by 5m of more;
- daily traffic flows change by 1,000 AADT or more;
- HGV flows change by 200 AADT or more;
- daily average speed will change by 10 km/hr or more;
- peak hour speed will change by 20 km/hr or more.

3.5.4 NO_2 concentrations fall off rapidly with distance from the roadside and the emission source[15]. In accordance with the DMRB guidance only those affected roads / junctions

[14] Design Manual for Roads and Bridges (DMRB), (May 2007), *Volume 11 Environmental Assessment, Section 3 Environmental Assessment techniques, Part 1 Air Quality*
[15] Air Quality Consultants (AQC), (July 2008), *NO_2 Concentrations and Distance from Roads*

identified through the screening assessment described above with sensitive receptors (human health and ecological) within 200m are considered further. For AQS pollutants sensitive receptors are defined as those where members of the public are regularly present and are likely to be exposed for a period of time appropriate to averaging period of the objective. Such receptors include residential properties, schools, and hospitals. For buildings the location of relevant exposure is taken as the building façade.

3.5.5 The impact of traffic emissions along the roads identified as requiring detailed assessment were assessed using ADMS-Roads v3.0, supplied by Cambridge Environmental Research Consultants (CERC). ADMS-Roads software is an atmospheric dispersion model developed for assessing the impacts of vehicular emissions. Use of the model for the assessment was agreed in advance with the Senior Scientific Officer of WC. Full details of the modelling and input parameters are provided in Section 7.

3.6 Significance Criteria

3.6.1 A range of approaches and methods are described in the guidance for determining whether air quality effects of a development are significant. The significance evaluation methodologies for nuisance dust and road traffic emissions are derived from relevant DEFRA[4], EPUK[7] and IQAM[10] guidance.

Construction Assessment

3.6.2 The risk of dust arising in sufficient quantities from a site to causes annoyance and / or health or ecological effects is dependant on:

- the scale and nature of the works (magnitude of potential dust emissions)
- the proximity of receptors, both human and ecological (potential for effects)

3.6.3 A site is allocated a 'Dust Emission Class' of high / medium / low for demolition, earthworks, construction and track out according to the following table:

Table 3.3: Dust Emission Classes

Dust Emission Class	Description
Demolition	
large	total building volume >50,000m^3; potentially dusty construction material; on-site crushing & screening; demolition activities >20m above ground level
medium	total building volume 20,000-50,000 m^3; potential dusty construction material; demolition activities 10-20m above ground levels
small	total building volume <20,000 m^3, construction material with low potential for dust releases; demolition activities <10m above ground; demolition activities during wetter months

Earthworks	
large	total site area >10,000 m^3; potentially dusty soil type; >10 heavy earth moving vehicles active at any one time; formation of bunds >8m height; total material moved >1000,000 tonnes
medium	total site area 2,500-10,000 m^3; moderately dusty soil type; 5-10 heavy earth moving vehicles active at any one time; formation of bunds 4-8m height; total material moved 20,000-1000,000 tonnes
small	total site area <2,500 m^3; soil type with large grain size; <5 heavy earth moving vehicles active at any one time; formation of bunds <4m height; total material moved <10,000 tonnes; earthworks during wetter months
Construction	
Large	total building volume >100,000 m^3; piling; on site concrete batching; sandblasting
medium	total building volume 25,000-100,000 m^3; potentially dusty construction material; piling; on site concrete batching
small	total building volume <25,000 m^3; construction material with low potential for dust release
Trackout	
large	>100 HDV trips in any one day; potentially dusty surface materials; unpaved road length >100m
medium	25-100 HDV trips in any one day; moderately dusty surface materials; unpaved road length 50-100m
small	<25 HDV trips in any one day; surface material with low potential for dust release; unpaved road length <50m
Note: Professional judgement is also used to determine the relevant dust emission class for each site	

3.6.4 The risk category for demolition, earthworks and construction activities is assessed as follows taking into account the Dust Emission Class and the distance to the nearest receptor:

Table 3.4: Risk Categories – Demolition Activities

Distance to Nearest Receptor (m)		**Dust Emission Class**		
Dust Soiling and PM10	**Ecological**	**Large**	**Medium**	**Small**
<20	-	high	high	medium
20-100	<20	high	medium	low
100-200	20-40	medium	low	low
200-350	40-100	medium	low	negligible

Note: risk categories are assigned assuming there is no mitigation

Table 3.5: Risk Categories – Earthworks and Construction Activities

Distance to Nearest Receptor (m)		Dust Emission Class		
Dust Soiling and PM10	**Ecological**	**Large**	**Medium**	**Small**
<20	-	high	high	medium
20-50	-	high	medium	low
50-100	<20	medium	medium	low
100-200	20-40	medium	low	negligible
200-350	40-100	low	low	negligible

Note: risk categories are assigned assuming there is no mitigation

Table 3.6: Risk Categories – Trackout

Distance to Nearest Receptor (m)		Dust Emission Class		
Dust Soiling and PM10	**Ecological**	**Large**	**Medium**	**Small**
<20	-	high	medium	medium
20-50	<20	medium	medium	low
50-100	20-100	low	low	negligible

Note: risk catagories are assigned assuming there is no mitigation

3.6.5 The sensitivity of the area of the site also needs to be defined. The sensitivity takes into account a number of factors such as the duration for which a dust source may be close to a sensitive receptor, the proximity and number of receptors, presence of natural screening, the sensitivity of the nearby receptors, and in the case of PM_{10}, the local background concentration. The impact significance for each receptor is assessed taking into account the sensitivity of the surrounding area and the risk of the site giving rise to dust effects:

Table 3.7: Significance of Effects for Each Activity with No Mitigation

sensitivity of surrounding area	risk of site giving rise to dust effects		
	high	**medium**	**low**
very high	substantial adverse	moderate adverse	moderate adverse
high	moderate adverse	moderate adverse	slight adverse
medium	moderate adverse	slight adverse	negligible
low	slight adverse	negligible	negligible

3.6.6 Once the impact has been described for each activity the overall significance of the air quality impacts during the construction phase is assessed. The overall assessment takes into account a number of aspects, including the significance of the effects for each of the four activities.

Operational Assessment

3.6.7 The magnitude and significance of the potential air quality effects are assessed through reference to the IAQM and EPUK guidance. The guidance provides an approach for defining the magnitude of changes and describing the air quality impacts at specific receptors. In undertaking the assessment reference is also made to the WC SPD although it is noted that the SPD refers to now superceded NSCA guidance (replaced by the 2010 EPUK guidance).

3.6.8 The magnitude of an impact is described as follows; based on the change in concentration of a pollutant brought about by the scheme as a percentage of the assessment level.

Table 3.8: Definition of Impact Magnitude for changes on pollutant concentration as % of the assessment level

Magnitude of Change	Annual Mean
large	increase / decrease > 10%
medium	increase / decrease 5 – 10%
small	increase / decrease 1 – 5%
imperceptible	increase / decrease <1%

3.6.9 The impact at each relevant receptor is assessed as follows:

Table 3.9: Air Quality Impact Descriptors for changes in annual mean concentrations at a receptor

absolute concentration in relation to objective / limit value	change in concentration		
	small	medium	large
increase with scheme			
above objective / limit value *with* scheme	slight adverse	moderate adverse	**substantial averse**
just below objective / limit value *with* scheme	slight adverse	moderate adverse	moderate adverse
below objective / limit value *with* scheme	negligible	slight adverse	slight adverse
well below objective / limit value *with* scheme	negligible	negligible	slight adverse
decrease with scheme			
above objective / limit value *without* scheme	slight beneficial	moderate beneficial	**substantial beneficial**
just below objective / limit value *without* scheme	slight beneficial	moderate beneficial	moderate beneficial
below objective / limit value *without* scheme	negligible	slight beneficial	slight beneficial
well below objective / limit value *without* scheme	negligible	negligible	slight beneficial

Notes:

'just below objective / limit value = 90-100% of the assessment value

'well below objective / limit value' = ≤ 75% of the assessment value

an imperceptible change is described as negligible

3.6.10 Once the impact has been described at each specific receptor the overall significance of the air quality impacts is assessed. This takes into account a number of aspects, including but not limited to, the number of properties / people affected; whether or not an exceedance of an objective or limit value is predicted; the extent to with an objective or limit value is exceeded and the degree of uncertainty.

4 Proposed Development

4.1 Full details on the proposed development are provided in the planning application and supporting documentation. Only those aspects of relevance to the air quality assessment are detailed below.

4.2 The outline planning application is for the construction of 400 dwellings with associated infrastructure and open space. The wider future development site encompasses a triangular area of land located to the north of the A580 (East Lancs Road) and bound to the east and west by housing along Church Lane and Stone Cross Lane North. The application site itself forms the northern part of this area of land as shown in Drawing D01.

4.3 Two access points are to be provided to the development: one to the west off Stone Cross Lane North and one to the east off Church Lane. These are to be provided a priority access T-junctions and will also cater for pedestrians, cyclists and buses. The two junctions are to be connected by an internal link road which will act as a primary distributor road and bus-link. The residential development is to be set-back from the East Lands Road.

4.4 The application site encompasses the existing Stirrups Farm which will be demolished.

5 Baseline Conditions

5.1 Site Setting

5.1.1 The site comprises an area of open undeveloped land lying on the southern edge of Lowton and to the north of the A580 (East Lancs Road) about 7km from Wigan town centre. The site is bound by residential areas to the north, east and west with a commercial area further west beyond Stone Cross Lane North. Land to the south comprises open agricultural land encompassing Little Lowes Fold and Thompson's farm beyond which lies the A580. Beyond the A580 the land is predominantly agricultural land, with residential to the southeast.

5.1.2 Site boundaries and immediate environs are:

Table 5.1: Site Boundaries and Environs

	boundary	neighbouring land
north	hedgerows / fencing onto residential properties	residential properties
east	hedgerows / fencing onto residential properties	residential properties
south	fencing / hedgerows to open land	open agricultural land to A580; agricultural land beyond and residential properties to southeast
west	fencing / hedgerows residential properties	residential properties with Stone Cross Business Park beyond

5.1.3 The site is relatively flat, with a gentle slope down from east to west and north to south. Hedgerows run through the site and there are isolated trees throughout, along with three ponds. The site area incorporates the existing Stirrups Farm.

5.1.4 Residential properties lie along the majority of the transport routes considered in the Study Area.

5.1.5 There are no statutorily designated ecological sites within the Study Area.

5.2 Air Quality Review

5.2.1 Reference has been made to the reports prepared by WC in fulfilment under the LAQM reporting requirements, including, but not limited to, WC's 2010 and 2011 Air Quality Progress Report, December 2011.

5.2.2 As part of the LAQM review and assessment process WC has declared an Air Quality Management Area (AQMA). A number of areas associated with the M6 motorway,

junctions on major roads such as the A580 East Lancs. Road and the A49, and busy town centre areas (Wigan and Leigh) have been declared within the AQMA due to emissions from road vehicles.

5.2.3 The AQMA includes Church Lane to the east, which is to provide an access point to the site, and the East Lancs Road to the south.

5.2.4 The WC 2011 report indicates that further detailed assessment and modelling work is currently on-going in the Wigan and wider Greater Manchester area for NO_2 and PM_{10}.

5.3 Background Airborne Pollutant Concentrations

5.3.1 Predicted background air quality data were obtained from the DEFRA LAQM website for the 1km x 1km grid squares in which the application site and the key transport routes associated with the application site are located.

5.3.2 The predicted data is based on 2010 ambient monitoring and meteorological data and incorporate newly revised information on the age and distribution of vehicles and emission factors. Predicted data is provided by DEFRA for each year from 2011 to 2030. It is widely acknowledged that unusually elevated NO_2 concentrations were experienced in 2010, believed to be due to the unusually cold weather, meaning that the projected background concentrations for NO_2 / NO_x within the data are higher than is to be expected in a typical year. Revised projected data is expected to be issued in early 2013 based on 2011 monitored data.

5.3.3 Predicted background concentrations for the proposed start of development (2013) are summarised in the following tables.

Table 5.2: Predicted Background Air Quality Data - 2013

Grid Square	Location	Concentrations			
		NO_2	NO_x	PM_{10}	PM2.5
361500 397500	Site	18.77	27.41	15.26	10.26
361500 396500	East Lancs Road (A580)	19.06	27.86	16.28	10.52
362500 396500	A580 and Church Lane Junction	19.49	28.55	15.48	10.47
362500 397500	Church Lane South	18.31	26.58	14.91	10.21
	objective (annual mean)	**40**	**30**	**30**	**30**

5.3.4 The average background NO_2 concentration for the grid square in which the assessment site is located is predicted to be substantially below the AQS objective at 47% of the objective in 2013, falling to 39% by 2018.

5.3.5 It should be noted that the data are effectively an average concentration across each 1 km square. The pollutant concentrations will therefore be higher close to any significant source, such as main roads, junctions and concentrated habitation including the A580, Church Lane and associated junctions and roundabouts.

5.4 Monitored Air Quality

5.4.1 There are two real-time continuous monitoring stations within the WC area as follows:

Table 5.3: Continuous Monitoring Sites

Location	Grid Ref.	Distance to Site	Pollutants Monitored
Wigan Centre	357815 406022	9.7km NW	NO_2, PM10, PM2.5, ozone, BTEX
Wigan Leigh	366290 399861	5.5km NE	NO_2, PM10

5.4.2 Both of these monitors are distant from the site and key transport routes associated with the assessment site. Both monitors are described as providing 'urban background' data.

5.4.3 The NO_2 results for these 2 monitors for the period 2008-2010 are detailed below:

Table 5.4: Continuous Monitors – Nitrogen Dioxide Concentrations

Monitor	Annual Mean (µg/m^3)			Number of Exceedances of Hourly mean		
	2008	2009	2010	2008	2009	2010
Wigan Centre Urban Background	24	24	26	0	0	0
Wigan Leigh Urban Background	26	25	29	0	0	0

5.4.4 The PM_{10} results for these 2 monitors for the period 2008-2010 are detailed below:

Table 5.5: Continuous Monitors – Particulate Concentrations

Monitor	Annual Mean (µg/m^3)		
	2008	2009	2010
Wigan Centre Urban Background	16	18	18
Wigan Leigh Urban Background	17	17	17

5.4.5 WC operates a network of diffusion tubes for monitoring NO_2 concentrations across the borough. Of these only one tube is currently, or has been recently, located within the vicinity of the site or the key transport routes within proximity of the site as detailed below:

Table 5.6: Diffusion Tube Monitoring Sites

Ref	Grid Reference	Location	Annual Mean NO_2 Concentrations (bias adjusted)(µg/m^3)		
			2009	2010	2011
52	362137 396347	Church Lane, Lowton (A580)	**40**	**46**	**46**

Notes: Data provided in WC air quality progress reports; figures in bold indicate exceedances of the annual mean objective

5.4.6 The site forms a 'roadside' location close to the Church Lane / A580 junction and is 3.0m from the kerb of Church Lane.

5.4.7 WC historically operated two other tubes in the area. These were tube 158 (NGR: 362747 397290; located on Leburnham Road) and tube 159 (NGR: 363640 396905; located on East Lancs Road). Data is available for up until 2006 when results are reported as 42 µg/m^3 and 30 µg/m^3 respectively (bias adjusted).

5.5 Industrial Emissions

5.5.1 No Environment Agency Part 1A processes have been identified within the vicinity of either the site that may influence background concentrations of NO_2 or PM_{10}.

5.6 Airborne Dust

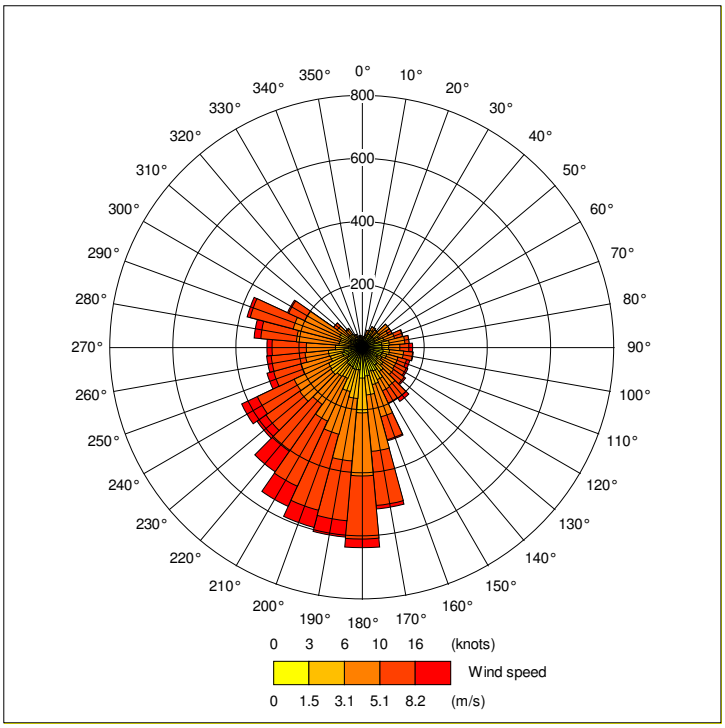
5.6.1 Ambient dust deposition rates[16] in rural areas are likely to range between 10 and 50 mg/m^2/day, 30 and 80 mg/m^2/day in suburban areas and 80 and 160 mg/m^2/day in town centre or industrial areas. The immediate site setting to the north, east and west is residential and the A580 lies to the south. Dust deposition rates in the area are therefore likely to tend towards the middle of the typical range for suburban areas, ie, about 50 mg/m^2/day.

5.7 Wind speed and direction

5.7.1 The annual wind rose for Manchester Woodford, which lies about 31 km southeast of the site and is the closest location for which appropriate meteorological is available, for 2011, is provided below. This depicts average wind speeds and directions for the whole year.

[16] HMSO, (1991), *Environmental Effects of Surface Mineral Workings*

Figure 5.1: Summary Wind Rose – Manchester Woodford (2011)



6 Assessment – Construction Phase

6.1 General Observations

6.1.1 Airborne dust occurs when fine particles are disturbed and loosened by physical activity such as breaking, excavating, loading and transport, or by an airstream passing over such materials. It is generally accepted that winds of more than 10 knots across loose fine materials can cause windblown dust emissions.

6.1.2 Light winds will transport fine particles already suspended in the atmosphere due to disturbance. In calm conditions any raised dust tends to settle out in the vicinity of the source. In windier conditions the dust may be carried for a greater distance before settling out. The distance the dust will be carried depends on the wind speed, the particle size of the dust, the topography of the site and its surroundings.

6.2 Potential Dust Sources

6.2.1 Fugitive dust emissions arising from site activities may result in:

- the soiling of dust surfaces,
- visible dust plumes,
- locally elevated PM_{10} concentrations

6.2.2 Site preparation will include demolition of Stirrups Farm. The principal potential sources of airborne dust arising from the proposed development are likely to be:

- earthworks / site preparation,
- demolition,
- loading and tipping,
- site haulage,
- road haulage,
- materials handling, including soils and building materials,
- windblow across stripped areas,
- windblow across stockpiles of construction materials, and
- concrete batching.

6.2.3 Site preparation will primarily consist of vegetation stripping and the localised levelling of uneven ground. The soils in the area are likely to be generally clayey and significant quantities of dust will not normally be raised during these operations.

6.2.4 Loading and tipping of potentially dusty materials such as road base and other aggregates may create visible dust emissions although these will be short lived.

6.2.5 Site haulage is typically the principal potential dust source on construction sites due to the physical disturbance of particles by vehicle movements over bare soil or loose surfaces. The potential impact is increased over longer distances when speeds tend to be greater and more effort is required to maintain a smooth damp running surface. Depending on the sequence in which the access roads are constructed, the haul distances at the application site may range up to about 750m. Over such distances, and in the absence of appropriate mitigation, moderate quantities of dust may be raised.

6.2.6 Dust may also be raised by road haulage due to spillage or windblow from unsheeted loads and due to the adherence of mud and sand to the wheels and underbodies of vehicles leaving the site. This may subsequently be deposited as track-out on roads in the vicinity of the site, and on drying, be raised as dust by the passage of vehicles. In the event of road vehicles travelling across unsurfaced and muddy ground, track out may occur.

6.2.7 The handling of soils, construction materials, and aggregates can be a potentially significant dust source, particularly under dry conditions.

6.2.8 It is generally accepted that winds blowing at more than 10 knots across loose fine materials can lead to airborne dust emissions. Winds of 10 knots or greater blow for about one third of the time annually, decreasing slightly in summer months. Windblown dust from areas of bare soil and materials stockpiles could therefore arise for prolonged periods.

6.2.9 Plant emissions are generally not a significant source of dust except where large numbers of plant are present close to boundaries and then only if not according with current emissions standards or emit black smoke.

6.2.10 Any concrete batching processes will be regulated if necessary under the Environmental Permitting regime (EPR).

6.2.11 In summary, the principal potential sources of dust are likely to be site haulage on unmade surfaces, windblow across disturbed surfaces and materials handling.

6.3 Risk of Dust Effects Arising

6.3.1 The risk of fugitive dust emissions from the application site resulting in the loss of amenity and / or health or ecological effects is related to:

- the nature of the activities being undertaken
- the duration of these activities
- the size of the site
- the meteorological conditions (wind speed, direction and rainfall)
- the proximity of receptors
- the adequacy of mitigation measures applied to reduce or eliminate dust; and,
- the sensitivity of the receptors to dust.

6.3.2 With reference to the IAQM guidance the dust emission classes for the application site are as follows:

Table 6.1: Dust Emission Classes

Activity	Class	Comment
demolition	small	total building volume <20,000m^3
earthworks	large	site area of ~13 ha (>10,000m^2)
construction	large	as above
trackout	large	unpaved haulage road lengths within the site potentially >100m, surface material potentially has high clay content

6.4 Potentially Sensitive Receptors

6.4.1 The site is located to the south of Lowton, with residential areas to the north, east and south, commercial properties to the west and agricultural land and the A580 to the south. Two schools are located to the east of Church Lane and are within 350m of the site. No other schools, hospitals or other potentially highly sensitive receptors are located within 350m of the site.

6.4.2 Two public rights of way across the site. There are no known sensitive horticultural land within the vicinity of the site.

6.4.3 The potentially sensitive receptors within 350m of the site are as follows:

Table 6.2: Estimated Number of Receptors within 350m of Site Boundary

Distance (m)	Number of receptors	Type of Receptor	Comments
<20	10-100	residential	properties to north, east and west
20-50	10-100	residential	properties to north, east and west
50-100	100-500	residential, school	properties to north, east, south and west, a school to the east
100-350	>500	residential, hotel, commercial, school	properties to north, east, south and west, a school to the east, commercial properties to the west

Note: distance is taken as distance to site boundary

6.4.4 No ecological Designated Sites (SPAs, SACs, SSSIs, Ramsar sits etc) have been identified within 100m of the site boundary.

6.4.5 Two access / egress routes are to be constructed for the application site; one off Church Lane to the east and one off Stone Cross Lane North to the west. As stated in the Traffic Assessment it is assumed that construction traffic to and from the development will primarily travel via the A580 and Stone Cross Lane.

6.4.6 In accordance with the IAQM guidance the assessment has considered receptors within 100m of the roads potentially to be used by the construction traffic up to a distance of 500m from the two site access points. To provide a conservative assessment it has been assumed that some construction transport will also travel via Church Lane; it is assumed that all transport will be directed via the A580.

6.4.7 The estimated number of receptors within this area is detailed in Tables 6.3 and 6.4.

Table 6.3: Estimated Number of Receptors Potentially Effected by Trackout from the Stone Cross Lane access

Distance (m)	Number of Receptors	Comments
<20	<10	residential receptors located along Stone Cross Lane and commercial properties to the west
20-50	10-100	
50-100	10-100	

Note: considers receptors within 100m of roads used by construction traffic up to 500m from the site access point assuming traffic is directed to the A580.

Table 6.4: Estimated Number of Receptors Potentially Effected by Trackout from the Church Lane access

Distance (m)	Number of Receptors	Comments
<20	10-100	residential receptors located along Church Lane and adjoining side roads, a school
20-50	10-100	
50-100	100-500	

Note: considers receptors within 100m of roads used by construction traffic up to 500m from the site access point assuming traffic is directed to the A580

6.4.8 No ecological Designated Sites (SPAs, SACs, SSSIs, Ramsar sits etc) have been identified within the area that may be affected by trackout.

6.5 Assessment of Fugitive Dust and PM_{10} Impacts

6.5.1 Taking into account the number of receptors identified above and the dust emissions classes the risk categories, in the absence of mitigation, of the site are as follows:

Table 6.5: Risk Categories – Dust Soiling and PM_{10} Effects

Activity	Dust Emission Class	Nearest Receptor	Risk Category
demolition	small	20-100m	low risk
earthworks	large	<20m	high risk
construction	large	<20m	high risk
trackout	large	<20m	high risk

Note: Based on Tables 2, 3 and 4 in the IAQM guidance

6.5.2 In summary the assessment indicates that there is a *high* risk of dust soiling and PM_{10} effects arising from fugitive dust during the construction phase due to the proximity of receptors to the site boundaries and access roads.

6.5.3 The overall significance of the potential impacts takes into account other factors such as the sensitivity of the surrounding area, the prevailing wind direction and potential screening provided to nearby receptors and is determined using professional judgement.

6.5.4 With reference to Table 6 in the IAQM guidance the sensitivity of the area is considered to be *high* with regards to dust soiling and earthworks and construction works. The sensitivity with regards to demolition works is *medium*. The application site is located on the outskirts of Lowton, there are in the order of 10-100 receptors within 20m of the site boundary many of which are located downwind of the prevailing wind direction. With regards to PM_{10} the local background PM_{10} concentrations are predicted to be substantially below the objective and the sensitivity with regards to PM_{10} effects is *medium*.

6.5.5 The overall significance of effects is therefore:

Table 6.6: Summary of Significance (in the absence of mitigation)

Source	Dust Soiling Effects	Ecological Effects	PM_{10} Effects
demolition	negligible	none	negligible
earthworks	moderate adverse	none	slight adverse
construction	moderate adverse	none	slight adverse
trackout	moderate adverse	none	slight adverse
overall significance	**moderate adverse**		

Note: with reference to Table 10 of the IAQM guidance

6.5.6 The assessment is based on the distances of the receptors to the boundaries of the site and assess the potential risk of effects during earthworks and construction operations in closest proximity to the site and does not take into account the distance to the primary sources of dust. The development will be undertaken in a phased approach and the risk of adverse impacts on the individual receptors will reduced as operations are more distant.

6.5.7 Depending on the phasing of the development, end users of the site could be temporarily affected by airborne dust from uncompleted parts of the development undergoing construction. The significance of any impacts would depend on the proximity of construction activities to the receptor and the degree of screening provided.

7 Assessment – Operational Phase

7.1.1 Initial Screening Assessment

7.1.2 An initial screening assessment was undertaken to determine the areas to be included within the ADMS-Roads model assessment. The changes in traffic flows for each of the roads included within the Transport Study area were assessed as summarised in Appendix B. 60% of the daily traffic is expected to travel via the Stone Cross Lane access

with the remaining 40% travelling via Church Lane. Thereafter the traffic will disperse throughout the road network.

7.1.3 Increases of >10% two-way AADT, AM peak and / or PM peak were noted along Stone Cross Lane North and the southern stretch of Church Lane with the development in 2013 and 2018. Increases of >5% two-way AADT, AM peak and / or PM peak were noted along Golbourne Road, Slag Lane, the north section of Church Lane and Kenyon Lane, all of which are within the AQMA. These roads were all therefore included within the detailed assessment. The % changes in two-way AADT along East Lancs Road were all below 5%. This road was however included in the modelling to enable assessment of the impacts at the key junctions with Stone Cross Lane North, Church Lane and Kenyon Lane.

7.1.4 The greatest changes are noted along Stone Cross Lane North, where the daily two-way AADT also increases by more than the screening criteria of 1,000 AADT at 1,255 AADT.

7.1.5 No other roads within the Transport Study area are predicted to experience an increase in >10% AADT, or to meet the other screening assessment criteria.

7.2 ADMS-Roads Model

7.2.1 Based on the results of the screening assessment the detailed assessment using the ADMS-Roads model focused on Stone Cross Lane North, Church Lane, East Lancs Road and Kenyon Lane, and associated junctions / roundabouts:

- J1 – Church Lane / Stone Cross Lane North / Slag lane / Golborne Road junction
- J2 – Stone Cross lane North / East Lancs Road junction
- J4 – Church Lane / East Lancs Road junction
- J6 – Kenyon lane / Newton Road junction

7.2.2 The model was run for 108 receptor locations at an elevation of 1.5m. The majority of the receptor locations represent residential building facades located alongside the road network. Additional receptor locations have been included as necessary within the modelled domain to ensure comprehensive coverage. A number of receptors (R101-R108) represent new receptors within the development site. Modelled receptor locations are provided in Drawing D03.

7.2.3 The model has been based on individual road links as determined by layout information, observations of traffic flows, traffic lights and idling traffic. Each road, junction and roundabout has been sub-divided into detailed links and modelled with one-way traffic flows. Comprehensive turning Annual Average Daily Traffic (AADT) traffic data has been provided by Royal Haskoning for each of the road links and junctions for each of the

modelled scenarios. The provided data has been used to generate appropriate detailed data for input into the ADMS-Roads model.

7.2.4 Estimates of HGV / LDV splits have been provided by Royal Haskoning.

7.2.5 The traffic data included data for the committed developments of:

- redevelopment of former colliery site at Bickeshaw South, Wigan
- Leigh Sports Village, Phase III development, Leigh
- Parsonage site, Leigh

7.3 For full details on the basis on which the traffic data has been derived reference should be made to the ES Chapter 10: Transportation and the Transport Assessment. All the traffic data is based on 2011 surveyed flows.

7.4 Traffic speeds used in the model are based on site observations and DEFRA guidance[iv], particularly with respect to junctions and traffic lights. The prediction of future traffic speeds input into the model has taken into account proposed off-site highways works associated with the committed developments considered in the transport assessment. The model also takes into account the proposals that form part of the development including the two priority T-junctions at Stone Cross lane North and Church Lane and the proposed additional land capacity at the A580 / Stone Cross Lane North junction.

7.5 Traffic exhaust emission data has been taken from the EFT v5.1 emissions factor database which was released in August 2012 and imported into ADMS-Roads v3.0.

7.5.1 The model was run using hourly sequential meteorological data for 2011 for the Meteorological Station at Woodford, Manchester weather station (NGR: 389805 382479), which lies about 31km to the southeast of the site. This is the nearest appropriate location for which ADMS weather data is available.

7.5.2 The general model conditions are summarised below:

Table 7.1: ADMS-Roads Model Input Parameters

Variables	Model Input
Surface roughness at source	0.5 m
Minimum Monin-Obukhov length for stable conditions	10 m
Receptor location	x, y coordinates, z = 1.5m (see Appendix C)
Emissions	NO_x, PM_{10}

Variables	Model Input
Emission factor	EFT 5.1 (2VC)
Meteorological data	1 year (2011) hourly sequential data from Manchester Woodford (NGR 389805 382479)
Emission profiles	average throughout 24 hours
Receptors	selected receptors as provided on Drawing D03
Model output	Long-term annual mean NO_x concentrations Long-term annual mean PM_{10} concentrations

7.5.3 The model has been run for the following scenarios:

Table 7.2: ADMS Model Scenarios

Scenario	Year	Description
A	2011	baseline traffic data, model verification
B	2013	baseline prior to development
C	2013	'Do Minimum' - without development (includes 'committed development')
D		'Do Something' – development and committed development
E	2018	'Do Minimum' - without development (includes 'committed development')
F		'Do Something' – development and committed development

7.5.4 The model has been used to predict concentrations of 'road-NO_x' and PM_{10} associated with the traffic. Receptor PM_{10} concentrations have been calculated by adding the predicted road contribution PM_{10} to the DEFRA predicted background PM_{10} concentrations (for 2013 and 2018) for the grid squares in which the receptors are located. Nitrogen dioxide concentrations at the receptors have been calculated using the road-NO_x to NO_2 calculator provided on the DEFRA LAQM website (version 3.2, dated August 2012) and the predicted background DEFRA concentrations. Contributions to annual mean NO_x and PM_{10} from road sources were not removed from the background concentrations as not all road sources within each grid square have been specifically modelled in the assessment. The version of the ADMS-Roads model used predicts the indirect contributions of PM_{10} as well as the direct vehicle exhaust emissions.

7.6 Model Verification

7.6.1 Where possible it is usual practice to verify the model in accordance with DEFRA guidance[1.] This is done by comparing modelled data with monitored data and, where necessary, deriving an adjustment factor. The only available monitored data within the Study Area is the WC diffusion tube data for location D52 close to the junction of Church

Lane and the A580. The model was run for 2011 using the 2011 traffic data and verified against the 2011 WC monitored data in accordance with guidance provided in TG[09].

7.6.2 The modelled concentration at D52 was within 10% of the monitored data and an adjustment factor of 1.17 was calculated.

7.7 ADMS-Roads Results

7.7.1 The full results for the modelling for NO_2 (NO_x) and PM_{10} for 2011, 2013 and 2018 are detailed in Appendix C.

7.7.2 To aid the assessment the receptors have been considered in each of the key areas within the modelled domain: Stone Cross Lane North, Church Lane, East Lancs Road, Newton Road and Kenyon Lane and associated junctions.

7.7.3 The maximum modelled increases in post-development NO_2 and PM_{10} concentrations at the receptors in each area are assessed in accordance with the guidance provided by EPUK and are summarised below.

Table 7.3: Summary of Maximum Modelled Increases in NO_2 in each Key Area – 2013 and 2018

	Maximum Change in Annual Mean Concentration (%)[1]	Magnitude of Change	Predicted Façade Concentration (µg/m^3)	Significance
2013				
Scenario D				
Stone Cross Lane North	+1.68	small	29.57	negligible
Church Lane	+1.58	small	32.03	negligible
A580	+0.55	imperceptible	41.65	negligible
Newton Road	+0.72	imperceptible	39.42	negligible
Junction Church Lane / Stone Cross Lane (J1)	+1.50	small	34.07	negligible
Junction Church Lane / A580 (J4)	+1.25	small	40.08	sight adverse
Junction A580 / Newton Road (J5)	+0.43	imperceptible	38.77	negligible
Junction Newton Rd / Kenyon Lane (J6)	+0.78	imperceptible	37.02	negligible
2018				
Scenario F				

	Maximum Change in Annual Mean Concentration (%)[1]	Magnitude of Change	Predicted Façade Concentration (µg/m^3)	Significance
Stone Cross Lane North	+1.30	small	22.2	negligible
Church Lane	+1.25	small	23.82	negligible
A580	+0.45	imperceptible	29.95	negligible
Newton Road	+0.72	imperceptible	39.42	negligible
Junction Church Lane / Stone Cross Lane (J1)	+1.23	small	25.33	negligible
Junction Church Lane / A580 (J4)	+1.03	small	32.18	negligible
Junction A580 / Newton Road (J5)	+0.40	imperceptible	25.25	negligible
Junction Newton Rd / Kenyon Lane (J6)	+0.63	imperceptible	29.29	negligible

1: maximum change in annual mean concentration as % of assessment level

2: maximum NO_2 concentration based on predicted background concentrations for grid squares in which receptors are located.

Table 7.4: Summary of Maximum Modelled Increases in PM_{10} in each Key Area – 2013 and 2018

	Maximum Change in Annual Mean Concentration (%)[1]	Magnitude of Change	Predicted Façade Concentration (µg/m^3)	Significance
2013				
Scenario D				
Stone Cross Lane North	+0.31	imperceptible	16.46	negligible
Church Lane	+0.29	imperceptible	16.44	negligible
A580	+0.12	imperceptible	18.24	negligible
Newton Road	+0.16	imperceptible	18.00	negligible
Junction Church Lane / Stone Cross Lane (J1)	+0.28	imperceptible	16.98	negligible
Junction Church Lane / A580 (J4)	+0.27	imperceptible	18.15	negligible
Junction A580 / Newton Road (J5)	+0.09	imperceptible	18.02	negligible
Junction Newton Rd / Kenyon Lane (J6)	+0.14	imperceptible	17.58	negligible
2018				
Scenario F				

	Maximum Change in Annual Mean Concentration (%)[1]	Magnitude of Change	Predicted Façade Concentration (µg/m^3)	Significance
Stone Cross Lane North	+0.26	imperceptible	15.53	negligible
Church Lane	+0.23	imperceptible	15.41	negligible
A580	+0.10	imperceptible	16.95	negligible
Newton Road	+0.13	imperceptible	16.82	negligible
Junction Church Lane / Stone Cross Lane (J1)	+0.23	imperceptible	15.95	negligible
Junction Church Lane / A580 (J4)	+0.21	imperceptible	17.19	negligible
Junction A580 / Newton Road (J5)	+0.06	imperceptible	16.27	negligible
Junction Newton Rd / Kenyon Lane (J6)	+0.12	imperceptible	16.78	negligible

1: maximum change in annual mean concentration as % of assessment level

2: maximum PM10 concentration based on predicted background concentrations for grid squares in which receptors are located.

7.7.4 The maximum predicted % changes in façade NO_2 and PM_{10} concentrations do not necessarily occur at the receptors with the highest predicted façade concentrations within the modelled domain. Tables 7.5 and 7.6 summarise the maximum receptor concentrations within each key area with the development.

Table 7.5: Summary of Maximum Façade NO_2 Concentrations in each Key Area – 2013 and 2018

Area	Receptor Ref	Predicted Façade Concentration (µg/m^3)	Descriptor[1]
2013			
Scenario C			
Stone Cross Lane North	52	32.21	below
Church Lane	7	17.30	well below
A580	60	41.65	above
Newton Road	99	39.42	just below
Junction Church Lane / Stone Cross Lane (J1)	34	34.07	below
Junction Church Lane / A580 (J4)	63	45.34	above
Junction A580 / Newton Road (J5)	96	40.18	above
Junction Newton Rd / Kenyon Lane (J6)	68	46.94	above

Area	Receptor Ref	Predicted Façade Concentration (µg/m^3)	Descriptor[1]
Site	106	24.39	well below
2018			
Scenario E			
Stone Cross Lane North	53	22.23	well below
Church Lane	7	25.29	well below
A580	60	29.95	well below
Newton Road	99	28.24	well below
Junction Church Lane / Stone Cross Lane (J1)	34	25.33	well below
Junction Church Lane / A580 (J4)	63	32.57	below
Junction A580 / Newton Road (J5)	96	28.70	well below
Junction Newton Rd / Kenyon Lane (J6)	68	33.54	below
Site	106	18.55	well below

1: With reference to EPUK descriptors

Table 7.6: Summary of Maximum Façade PM_{10} Concentrations in each Key Area – 2013 and 2018

Area	Receptor Ref	Predicted Façade Concentration (µg/m^3)	Descriptor[1]
2013			
Scenario C			
Stone Cross Lane North	52	18.07	well below
Church Lane	7	17.30	well below
A580	59	18.50	well below
Newton Road	99	18.00	well below
Junction Church Lane / Stone Cross Lane (J1)	34	16.98	well below
Junction Church Lane / A580 (J4)	63	18.69	well below
Junction A580 / Newton Road (J5)	96	18.06	well below
Junction Newton Rd / Kenyon Lane (J6)	68	18.50	well below
Site	106	17.12	well below
2018			
Scenario E			
Stone Cross Lane North	53	15.79	well below
Church Lane	7	16.21	well below
A580	60	16.95	well below

Area	Receptor Ref	Predicted Façade Concentration (µg/m^3)	Descriptor[1]
Newton Road	99	16.31	well below
Junction Church Lane / Stone Cross Lane (J1)	34	15.95	well below
Junction Church Lane / A580 (J4)	63	17.23	well below
Junction A580 / Newton Road (J5)	96	16.90	well below
Junction Newton Rd / Kenyon Lane (J6)	68	17.10	well below
Site	106	16.31	well below

1: With reference to EPUK descriptors

7.7.5 *Small* magnitudes of change are predicted at a number of receptors at the Church Lane / East Lancs Road junction with the development in 2013. The predicted façade concentrations at a number of these locations are predicted to be above the objective (i.e. above 40 µg/m^3) resulting in **slight adverse** impacts. The maximum change in this area is predicted at receptors R4 and R5 at 1.25% and 1.23% (as % of the assessment level) respectively. These receptors are located on the northern side of Church Lane between the A580 and Fulwood Road. At a number of these receptors the modelling predicts exceedances of the objective in 2013 without the development, with a potential movement from 'just below' the objective to 'above' the objective only predicted at one receptor, R3.

7.7.6 *Small* magnitudes of change are also predicted at a number of receptors located along Church Lane and Stone Cross Lane North and at the Stone Cross Lane North / Church Lane junction. The greatest predicted changes within the modelled domain are at receptors in these areas up to a maximum of 1.68%. The predicted façade concentrations are all 'below' the objective (several described as 'below' the objective at the junction with the majority being 'well below' along the roads) with resulting **negligible** impacts. Elsewhere within the modelled domain the magnitudes of change are predicted to be *imperceptible* with **negligible** impacts.

7.7.7 In addition to those noted above at the Church Lane / A580 junction, exceedances of the objective are predicted at the Kenyon Lane / Newton Road junction, and at one receptor at the Newton Road / A580 junction without the development in 2013. Predicted changes at these locations with the development are all less than 1%, *imperceptible*, with resulting **negligible** impacts.

7.7.8 Reduced impacts are predicted in 2018. *Small* changes are predicted at a number of receptors at the Church Lane / A580 junction, and along Church Lane and Stone Cross

Lane North, although at a reduced number to in 2013. Impacts are predicted as being **negligible** due to reducing background concentrations and all façade concentrations being 'below' the objective.

7.7.9 *Imperceptible* magnitudes of change are predicted for PM_{10} concentrations at all the modelled receptor facades, with resulting **negligible** impacts.

7.7.10 The new residential receptors to be introduced as a result of the development are set back from the A580. Predicted NO_2 and PM_{10} concentrations within the development area are substantially below the objectives. The local air quality within the application site is therefore considered to be suitable for the proposed development.

7.7.11 Based on the results of the ADMS modelling it was not considered that further modelling of the roads within the wider Transport Study area was required.

8 Mitigation

8.1 Construction Phase

8.1.1 In the absence of adequate mitigation, the estimated risk of adverse impacts due to dust soiling at nearby residential properties is *moderate* and is *slight* for PM_{10} impacts. However, the impact of construction activities will be readily controlled through the implementation of standard best practice in respect of dust control and site management, as detailed in GLA Best Practice Guidance.

8.1.2 As an over-riding requirement, should winds carry visible dust towards the site boundaries to the north, east and west, the operations giving rise to the dust in that part of the site will be modified or suspended until more suitable conditions pertain, or until effective dust control measures are implemented.

8.1.3 Haulage across the site will be restricted to designated haul routes, which will as far as possible be located towards the centre of the site, and away from sensitive receptors. Wherever possible, haul routes will be prepared with compacted stone or other similar material. Once the internal access roads are constructed, haulage will wherever possible take place on these routes.

8.1.4 The surface of the internal haul routes will be inspected daily, and any potholes or other defects will be made good.

8.1.5 Further standard good practices in respect of haulage include:

- avoiding abrupt changes in horizontal and vertical alignment,
- grading and maintenance of unsurfaced routes,
- setting an appropriate site speed limit,
- even loading of vehicles to avoid spillages,
- regular removal of spilled material from site routes,
- dust suppression by regular spraying in dry conditions,
- inspection and cleaning of vehicles leaving site, through provision of a wheel wash area, equipped with a high pressure hose and an adequate water supply near the site entrance,
- cleaning of any track out or other deposits from the adjacent highways.

8.1.6 A suitable supply of water for dust suppression purposes will be maintained, under all climatic conditions, throughout the construction works. Dust suppression will be implemented through regular spraying of the haul routes, stockpiled material and any freshly exposed earthworks.

8.1.7 Other more general matters and the management of the site can affect the likelihood of significant dust emissions. These include:

- minimisation of drop heights during tipping and loading,
- loading and tipping in the lee of existing structures and stockpiles,
- maintenance of equipment to ensure its efficient operation,
- use of clean water for dust suppression, to avoid re-circulating fine material,
- high standards of house-keeping to minimise track-out and wind blown dust, and
- effective staff training in respect of the causes and prevention of dust.

8.1.8 No additional mitigation measures to those standard measures utilised for construction are considered necessary.

8.1.9 The effectiveness of the mitigation measures outlined above will, to a large extent, rely on the actions and behaviour of contractors. The procedures and measures for the control of dust during the construction phase will be incorporated into a Construction Environmental Management Plan (CEMP) to be used by contractors. The CEMP will be developed and agreed with the Local Authority, and other regulators / consultees as required, prior to the commencement of the construction activities.

8.2 Operational Phase

8.2.1 The vehicle emissions assessment demonstrates that the proposed development will have a slight adverse impact on air quality (with regards to NO_2) at a small number of receptors at the Church Lane / East Lancs Road junction due to the generation of additional traffic. Appropriate mitigation measures will therefore be implemented in order to reduce the extent of any adverse impact as far as is reasonably possible.

8.2.2 The key mitigation measure will be to encourage the use of means of transport other than private car. The site already benefits from access to existing public transport (local bus routes) and the proposals include for further public transport enhancement. These proposals are detailed in the ES Chapter 10: Transportation. Cycle and pedestrian facilities will also be provided as part of the development. The development is supported by a comprehensive Travel Plan which will positively encourage travel by sustainable modes as detailed in the ES Volume 3: Technical Appendix 10.2.

9 Residual Effects Assessment

9.1 Construction Phase

9.1.1 The foregoing standard good working practices and additional mitigation measures are generally accepted by the Government as providing effective control against the impact of airborne dust and fine particulates. The implementation of the recommended mitigation measures will result in the following residual impacts:

Table 9.1: Summary of Significance (with mitigation)

Source	Dust Soiling Effects	Ecological Effects	PM_{10} Effects
demolition	negligible	none	negligible
earthworks	slight adverse	none	negligible
construction	slight adverse	none	negligible
trackout	slight adverse	none	negligible
overall significance	**negligible to slight adverse**		

Note: with reference to Tables 7 and 9 of the IAQM guidance

9.1.2 The risk of adverse impacts arising due to dust soiling during the construction phase, with mitigation, may remain **slight adverse** when works are being undertaken in close proximity to the site boundaries. However, as construction activities move away from the sensitive boundaries the risk will reduce to **negligible**. Any such adverse impacts will be short lived.

9.2 Operational Phase

9.2.1 The detailed vehicle emissions assessment predicts **slight adverse** impacts due to increasing traffic associated with the development at a small number of receptors at the Church Lane / East Lancs Road junction. **Negligible** impacts are predicted elsewhere. The implementation of the Travel Plan will minimise the potential traffic impacts, and hence local air quality impacts, of the proposed development. Therefore it is considered that the development would have a **negligible** residual impact.

10 Monitoring

10.1 Construction Phase

10.1.1 Site monitoring will ensure that dust and PM_{10} emissions from the earthworks and construction activities are adequately controlled. Visual inspections of site activities, dust controls, site conditions and access roads will be undertaken at the start of operations and subsequently at least twice more throughout the working day and a daily record maintained. Where visible dust emissions are observed being carried towards the sensitive site boundaries to the west, south, east and northwest, the Site Manager will act promptly to identify the source(s) of the dust and take the necessary corrective action.

10.1.2 The Site Manager will instruct the modification, reduction or suspension of any operation or process causing visible dust emissions crossing the site boundary until such time as the situation has been resolved.

10.1.3 Site staff will be instructed to inform the Site Manager whenever visible dust emissions are observed, or appear likely to occur, as a result of any operation or process.

10.1.4 All complaints will be recorded and reported to the Site Manager, who will investigate the circumstances and ensure that any necessary corrective measures are taken. A prompt response will be made to the complainant and a record, including copies of all correspondence and telephone filenotes, will be made in the complaints register to be held at the site office.

10.1.5 WC will be advised, in writing within one week, of any dust complaint received together with details of the findings of the investigation and any corrective measures which have been taken.

10.1.6 In the event of any substantiated complaint, the dust management scheme will be reviewed and amended as necessary.

10.2 Operational Phase

10.2.1 No monitoring is required during the operational phase.

11 Assumptions

11.1 The vehicle emission assessment has been undertaken utilising recently published predicted background air quality data and vehicle emission rates and is therefore considered to be robust. The predicted background air quality data is based on 2010 monitored data and is widely acknowledged as being higher than may be expected in future years due to specific conditions occurring during 2010 and hence provides a conservative assessment. A recently issued NO_x to NO_2 converter which takes into account the new background and emission rate data has also been used in the assessment.

11.2 Predicted traffic has been provided by Royal Haskoning and is based on measured traffic flows in 2011, and takes into account committed development. Traffic speeds used in the model are based on field observations and local speed limits. The assessment has been undertaken using traffic data for the wider development of 670 dwellings, and hence is highly conservative with regards to the specific application for 400 dwellings.

11.3 WC NO_2 monitoring data is available in the immediate vicinity of the road network affected by the development, albeit for one location, enabling model verification utilising local modelled and measured data. The model output data is within expectations given the nature of the road network and predicted AADT increases.

11.4 The model has been run using meteorological data from Manchester Woodford, which provides the closest available data. Local variations in weather and wind direction are however likely to exist.

12 Summary and Conclusions

12.1 The air quality assessment has considered the potential impacts associated with fugitive dust and vehicle exhaust emissions during the construction and operational phases of the project.

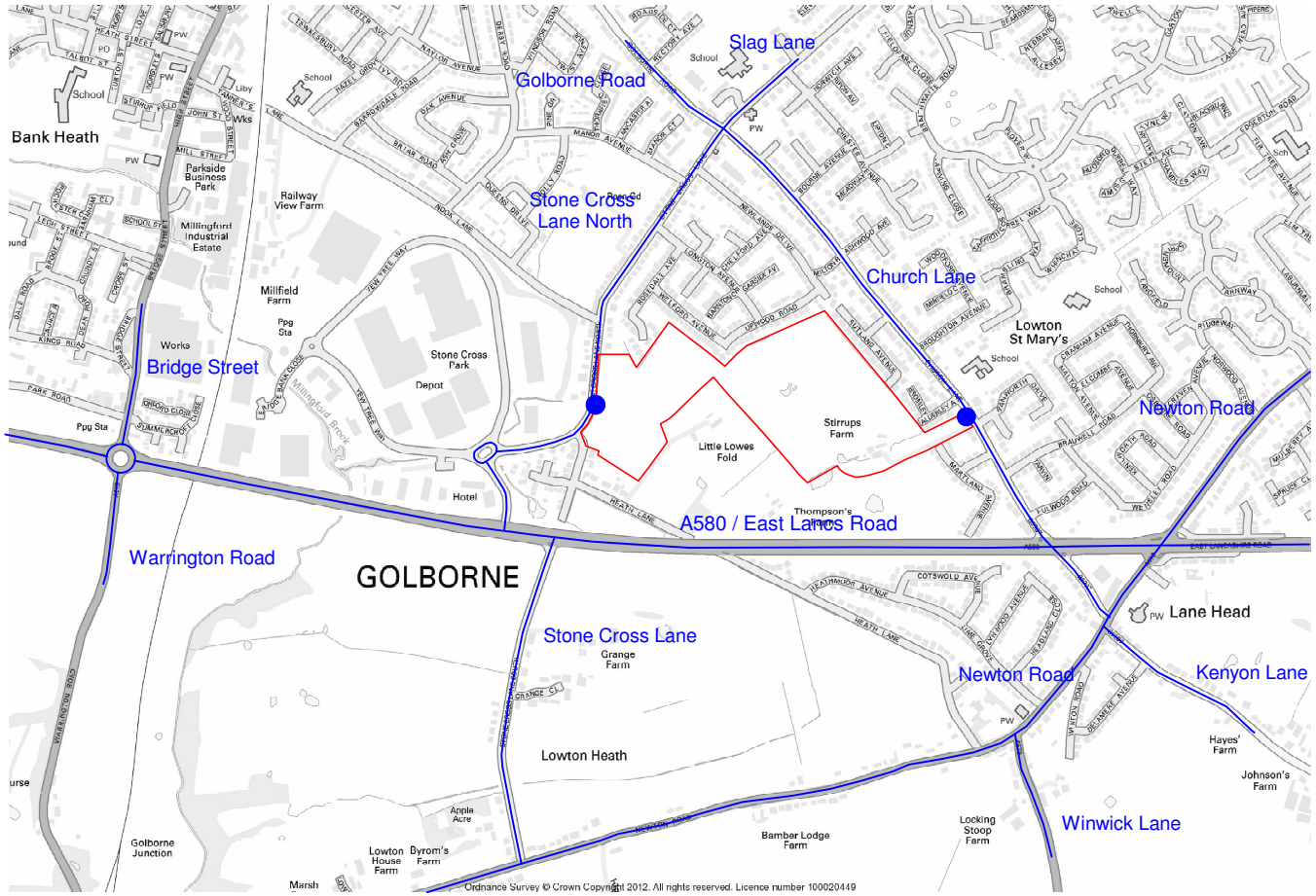
12.2 An assessment has been undertaken of the potential for fugitive dust that may arise during the earthworks and construction phases of the project, and from track-out from the

access points, to impact nearby sensitive receptors through both soiling and human health effects. The assessment takes into account the size of the development and the sensitivity of the surrounding area. Through the incorporation of standard dust mitigation measures during the construction works no unacceptable impacts on human health, amenity or ecological receptors have been identified.

12.3 The air quality assessment has also incorporated an assessment of the potential impacts from additional vehicle exhaust emissions associated with the development. The assessment is based on traffic data generated in support of the transport assessment. The assessment assumes completion of the development by 2018 and takes into account existing committed development within the area. No unacceptable impacts on human health, amenity or ecological receptors have been identified through the additional traffic associated with the development.

12.4 Overall the effects are not predicted to be significant with respect to air quality with no significant residual effects.

DRAWINGS



Site access points

Roads assessed with regards to vehicle emissions

Site boundary

SMITH GRANT Environmental Consultancy LLP

Station House
Station Road, Ruabon
Wrexham, LL14 6DL
Tel: 01978 822367
Fax: 01978 824718

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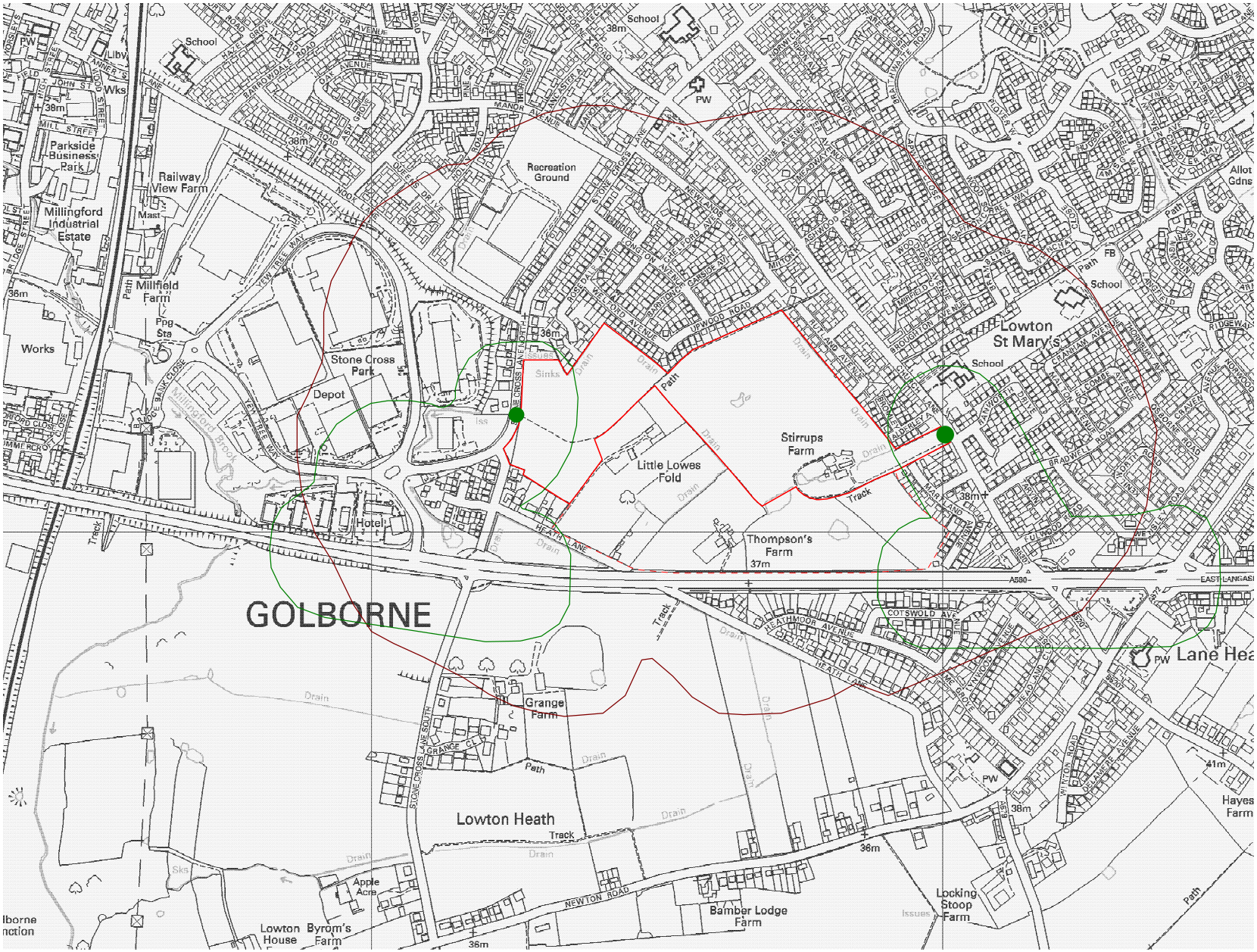
email: info@smithgrant.co.uk

Project: Land East Of Stone Cross Lane North, Lowton	
Drawing: Study Area	
Drawn: LD	Checked: KEH
Date: 05.02.13	Scale: nts
Job No: R1803	Drg No: D01



N

Site Boundary

Wider site boundary

Construction Dust Study Area

Track Out Study Area

Access Points

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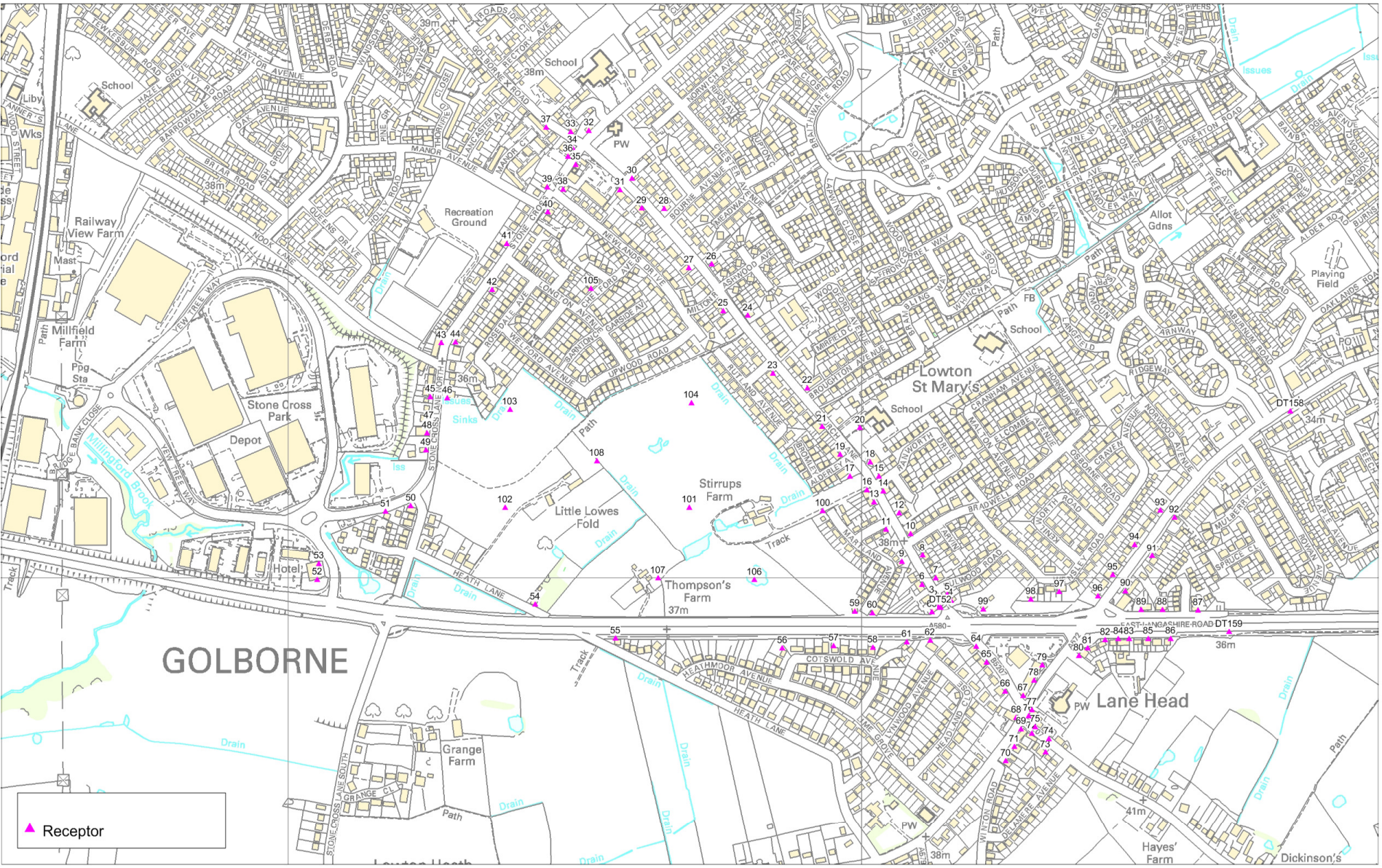
Project: Land East of Stone Cross Lane North, Lowton	
Drawing: Construction Phase Assessment Area	
Drawn: LD	Checked: KEH
Date: 05.02.13	Scale: 1:10,000 @ A4
Job No: R1803	Drg No: D02



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email: consult@smithgrant.co.uk

Project: Stonecross Lane	
Drawing: Receptors	
Drawn by: DL	Checked: KEH
Date: 04/02/13	Scale: NTS
Job No: R1803	Drg No: Receptors

APPENDIX A

Correspondence with
Wigan Council

From: **<D.Bell@wigan.gov.uk>**
To: **<katrina.hawkins@smithgrant.co.uk>**
Date sent: **Wed, 9 Jan 2013 16:50:07 +0000**
Subject: **RE: Land East of Stone Cross Lane North, Wigan**

Hi Katrina

Please find attached monitoring data up to 2011, 2012 should be available February/ March 2013, there are no further reports available yet. The scope of work meets our requirements.

If you need any more information, please do not hesitate to call.

Regards

Diana

Diana Bell
Senior Scientific Officer
Environmental Protection
Places: Economy, Waste and Infrastructure
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PO Box 100
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www.facebook.com/WiganCouncilOnline

-----Original Message-----
From: Katrina Hawkins [mailto:katrina.hawkins@smithgrant.co.uk]
Sent: Wed 09 January 2013 11:00
To: Bell, Diana
Cc: Rawsthorne, Dave
Subject: Land East of Stone Cross Lane North, Wigan

Diana

You may recall we spoke a few months ago about a possible air quality assessment of a site in Wigan.

We have now been instructed to carry out an air quality assessment of different site - Lane East of Stone Cross Lane North, Lowton. Planning ref: A/12/77592. An Environmental Statement has already been submitted for this development but did not include an air quality assessment. I understand that the planning officer Dave Rawsthorne has advised that an air quality assessment would be required.

I have attached our proposed scope of work for the assessment. I have also attached a plan detailing the highway area considered within the transport assessment, and hence which would be considered within our initial screening assessment. I would be grateful if you could advise whether this meets your requirements.

I have a copy of the WC 2011 Air Quality Progress Report. I would also be grateful if you were able to forward any later reports or monitoring data if the report is not yet available.

Many thanks

Katrina

Katrina Hawkins
BSc MSc MIEMA MIAQM CEnv
Partner

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APPENDIX B

Percentage Change in AADT on
Key Transport Links

R1803 Land East of Stone Cross Lane North, Lowton

Appendix B: % Changes in AADT on Key Transport Road Links

2013/2018 Without Proposed Development inc. Committed Developments				
Link Ref.	24hr AADT (one-Way)			
	LVs	HVs	Tot.	HV%
1A	4239	185	4424	4.2%
1B	4421	189	4610	4.1%
2A	5898	72	5970	1.2%
2B	6039	81	6120	1.3%
3A	3692	162	3854	4.2%
3B	2974	167	3140	5.3%
4A	3537	54	3591	1.5%
4B	3933	36	3969	0.9%
5A	14519	774	15293	5.1%
5B	15238	950	16187	5.9%
6A	5423	203	5625	3.6%
6B	2943	135	3078	4.4%
7A	13271	851	14122	6.0%
7B	15032	743	15774	4.7%
8A	15032	743	15774	4.7%
8B	13271	851	14122	6.0%
9A	12191	851	13042	6.5%
9B	14600	743	15342	4.8%
10A	2363	5	2367	0.2%
10B	1715	5	1719	0.3%
11A	3275	180	3455	5.2%
11B	3431	158	3588	4.4%
12A	12607	914	13521	6.8%
12B	14581	819	15400	5.3%
13A	2336	81	2417	3.4%
13B	2885	108	2993	3.6%
14A	14798	743	15540	4.8%
14B	12119	833	12952	6.4%
15A	5966	320	6285	5.1%
15B	5673	284	5956	4.8%
16A	14095	1089	15184	7.2%
16B	16528	968	17496	5.5%
17A	6977	419	7395	5.7%
17B	6779	468	7247	6.5%
18A	14554	824	15378	5.4%
18B	12612	932	13543	6.9%
19A	2844	104	2948	3.5%
19B	2331	77	2408	3.2%
20A	6702	473	7175	6.6%
20B	6941	428	7368	5.8%
21A	3220	63	3283	1.9%
21B	2835	81	2916	2.8%
22A	6556	455	7010	6.5%
22B	7215	509	7723	6.6%
23A	6697	459	7156	6.4%
23B	5732	374	6106	6.1%
24A	3952	288	4240	6.8%
24B	6408	396	6804	5.8%
25A	2685	108	2793	3.9%
25B	1193	86	1279	6.7%
26A	3765	135	3900	3.5%
26B	1846	86	1931	4.4%
27A	1580	18	1598	1.1%
27B	2057	27	2084	1.3%
28A	1265	72	1337	5.4%
28B	2707	113	2820	4.0%
29A	4153	135	4288	3.1%
29B	4649	180	4829	3.7%
30A	11467	860	12326	7.0%
30B	14168	1004	15171	6.6%
31A	2448	63	2511	2.5%
31B	3191	50	3240	1.5%
32A	16476	1044	17520	6.0%
32B	12537	869	13406	6.5%
33A	4154	279	4433	6.3%
33B	3123	230	3353	6.8%
34A	0	0	0	0.0%
34B	0	0	0	0.0%
35A	3123	230	3353	6.8%
35B	4154	279	4433	6.3%
36A	3431	158	3588	4.4%
36B	3275	180	3455	5.2%
37A	0	0	0	0.0%
37B	0	0	0	0.0%
38A	3275	180	3455	5.2%
38B	3431	158	3588	4.4%

2013/2018 With Proposed Development inc. Committed Developments				
Link Ref.	24hr AADT (one-Way)			
	LVs	HVs	Tot.	HV%
1A	4524	185	4709	3.9%
1B	4691	189	4880	3.9%
2A	6375	72	6447	1.1%
2B	6535	81	6616	1.2%
3A	4039	162	4201	3.9%
3B	3276	167	3442	4.8%
4A	3956	54	4010	1.3%
4B	4393	36	4429	0.8%
5A	14818	774	15592	5.0%
5B	15711	950	16660	5.7%
6A	6151	203	6354	3.2%
6B	3469	135	3604	3.7%
7A	13576	851	14426	5.9%
7B	15366	743	16108	4.6%
8A	15366	743	16108	4.6%
8B	13576	851	14426	5.9%
9A	12468	851	13318	6.4%
9B	14907	743	15650	4.7%
10A	2396	5	2400	0.2%
10B	1746	5	1751	0.3%
11A	3693	180	3873	4.6%
11B	3786	158	3943	4.0%
12A	12978	914	13891	6.6%
12B	14989	819	15808	5.2%
13A	2513	81	2594	3.1%
13B	3119	108	3227	3.3%
14A	15105	743	15848	4.7%
14B	12396	833	13228	6.3%
15A	6028	320	6347	5.0%
15B	5740	284	6024	4.7%
16A	14403	1089	15492	7.0%
16B	16869	968	17836	5.4%
17A	6977	419	7395	5.7%
17B	6779	468	7247	6.5%
18A	14962	824	15785	5.2%
18B	12982	932	13914	6.7%
19A	3078	104	3182	3.3%
19B	2509	77	2585	3.0%
20A	6702	473	7175	6.6%
20B	6941	428	7368	5.8%
21A	3353	63	3416	1.8%
21B	2991	81	3072	2.6%
22A	6601	455	7055	6.4%
22B	7293	509	7802	6.5%
23A	6776	459	7235	6.3%
23B	5777	374	6151	6.1%
24A	4007	288	4295	6.7%
24B	6501	396	6897	5.7%
25A	2699	108	2807	3.8%
25B	1203	86	1288	6.6%
26A	3789	135	3924	3.4%
26B	1863	86	1948	4.4%
27A	1611	18	1629	1.1%
27B	2090	27	2117	1.3%
28A	1275	72	1347	5.3%
28B	2722	113	2834	4.0%
29A	4169	135	4304	3.1%
29B	4683	180	4863	3.7%
30A	11940	860	12799	6.7%
30B	14467	1004	15471	6.5%
31A	2453	63	2516	2.5%
31B	3214	50	3264	1.5%
32A	16755	1044	17799	5.9%
32B	12952	869	13821	6.3%
33A	4613	279	4892	5.7%
33B	3542	230	3771	6.1%
34A	1148	0	1148	0.0%
34B	985	0	985	0.0%
35A	3649	230	3878	5.9%
35B	4882	279	5161	5.4%
36A	3786	158	3943	4.0%
36B	3693	180	3873	4.6%
37A	765	0	765	0.0%
37B	657	0	657	0.0%
38A	3577	180	3757	4.8%
38B	3778	158	3936	4.0%

2013/2018 % change in toal vehicles					Comments	Link included in ADMS-Roads model
Link Ref.	24hr AADT (one-Way)					
	with	without	difference	%		
1A	4709	4424	285	6.44	AQMA	yes
1B	4880	4610	271	5.87	AQMA	yes
2A	6447	5970	477	7.98	AQMA	yes
2B	6616	6120	495	8.10	AQMA	yes
3A	4201	3854	347	9.01	AQMA	yes
3B	3442	3140	302	9.62	AQMA	yes
4A	4010	3591	419	11.66	non-AQMA	yes
4B	4429	3969	460	11.58	non-AQMA	yes
5A	15592	15293	299	1.96		yes
5B	16660	16187	473	2.92		yes
6A	6354	5625	729	12.96	non-AQMA	yes
6B	3604	3078	526	17.09	non-AQMA	yes
7A	14426	14122	304	2.16		yes
7B	16108	15774	334	2.12		yes
8A	16108	15774	334	2.12		yes
8B	14426	14122	304	2.16		yes
9A	13318	13042	277	2.12		yes
9B	15650	15342	308	2.01		yes
10A	2400	2367	33	1.40		
10B	1751	1719	32	1.84		
11A	3873	3455	418	12.09	AQMA	yes
11B	3943	3588	355	9.89	AQMA	yes
12A	13891	13521	371	2.74		yes
12B	15808	15400	408	2.65		yes
13A	2594	2417	178	7.36	AQMA	yes
13B	3227	2993	234	7.83	AQMA	yes
14A	15848	15540	308	1.98		yes
14B	13228	12952	277	2.14		yes
15A	6347	6285	62	0.99		yes
15B	6024	5956	67	1.13		yes
16A	15492	15184	309	2.03		yes
16B	17836	17496	341	1.95		yes
17A	7395	7395	0	0.00		yes
17B	7247	7247	0	0.00		yes
18A	15785	15378	408	2.65		yes
18B	13914	13543	371	2.74		yes
19A	3182	2948	234	7.95	AQMA	yes
19B	2585	2408	178	7.38	AQMA	yes
20A	7175	7175	0	0.00		yes
20B	7368	7368	0	0.00		yes
21A	3416	3283	133	4.04		yes
21B	3072	2916	156	5.36	non-AQMA	yes
22A	7055	7010	45	0.64		
22B	7802	7723	78	1.01		
23A	7235	7156	78	1.09		
23B	6151	6106	45	0.74		
24A	4295	4240	55	1.29		
24B	6897	6804	93	1.37		
25A	2807	2793	15	0.52		
25B	1288	1279	9	0.74		
26A	3924	3900	24	0.61		
26B	1948	1931	17	0.88		
27A	1629	1598	32	1.98		
27B	2117	2084	33	1.59		
28A	1347	1337	9	0.71		
28B	2834	2820	15	0.52		
29A	4304	4288	16	0.38		
29B	4863	4829	34	0.71		
30A	12799	12326	473	3.84		
30B	15471	15171	299	1.97		
31A	2516	2511	5	0.20		
31B	3264	3240	24	0.73		
32A	17799	17520	278	1.59		
32B	13821	13406	415	3.10		
33A	4892	4433	460	10.37	non-AQMA	yes
33B	3771	3353	419	12.49	non-AQMA	yes
34A	1148	0	1148	>10		yes
34B	985	0	985	>10		yes
35A	3878	3353	526	15.69	non-AQMA	yes
35B	5161	4433	729	16.45	non-AQMA	yes
36A	3943	3588	355	9.89		yes
36B	3873	3455	418	12.09	non-AQMA	yes
37A	765	0	765	>10		yes
37B	657	0	657	>10		yes
38A	3757	3455	302	8.74	non-AQMA	yes
38B	3936	3588	347	9.68	non-AQMA	yes

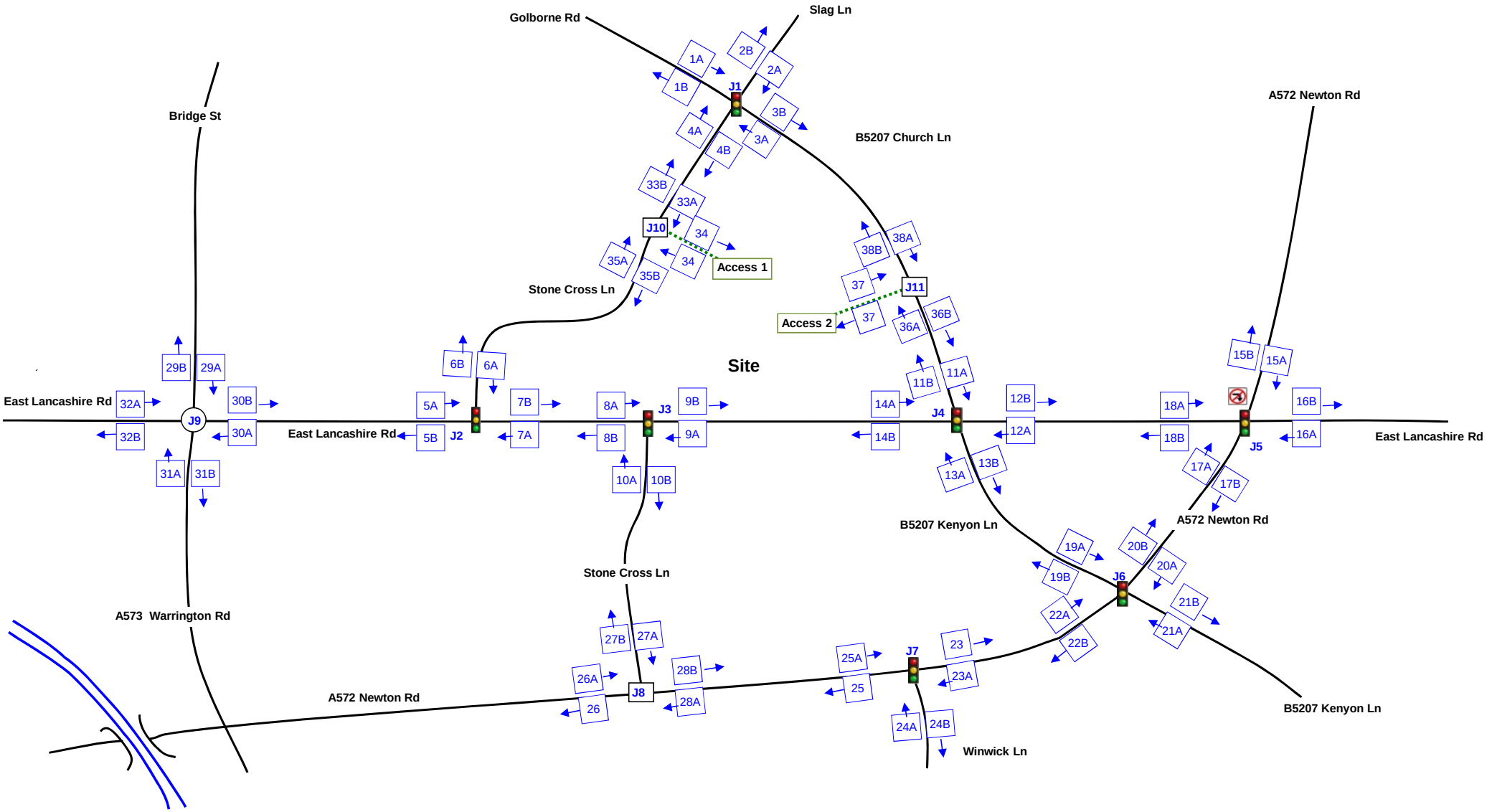
Note:

Link traffic data provided by Royal Haskoning DHV

1. For link no.refer to attached Fig.1.
2. AADT = Annual Average Daily Traffic
3. LV refers to light duty vehicles (Cars and Light Goods vehicles).
4. HV refers to heavey duty vehicles (Buses, Coaches and all HGVs).
5. AADT in the above Tables were derived by factoring 2011 peak hour turning count flows. The factor was derived using 2011 ATC data for Stone Cross Lane North.
6. Growth factor not appl;ied to traffic date; hence 2013 data is same as 2018

Key

>	10.00
>	5.00



Stonecross Lane, Lowton Wigan

Fig 1: Link Reference (For One-Way 24HRs AADT)

Job No. 9W7990PL

APPENDIX C

ADMS-Roads Model Input Data

R1803: Land East of Stone Cross Lane North, Lowton
R1803-R01-Appendix C
ADMS-Roads Model Input Data

Scenario A

Source name	Vehicle category	Average speed (km/hr)	Total Vehicles	Vehicle Count (hourly average)
L1	light duty vehicle	5	446	20
L3	light duty vehicle	5	13613	568
12B	light duty vehicle	40	13748	574
14A_Q	light duty vehicle	10	14058	587
Church_Q	light duty vehicle	10	6481	271
L5	light duty vehicle	5	6035	252
L6	light duty vehicle	10	5144	215
Keynon	light duty vehicle	40	5221	219
L2	light duty vehicle	20	77	4
L4	light duty vehicle	10	11470	479
14B	light duty vehicle	50	11192	467
12A	light duty vehicle	20	11547	482
Keynon_Q	light duty vehicle	10	5221	219
Keynon_S	light duty vehicle	50	5891	246
Newton_3_Q	light duty vehicle	10	12844	536
Newton_3	light duty vehicle	50	12844	536
Newton_2_SB	light duty vehicle	30	6206	260
Newton_2_NB_A	light duty vehicle	10	6458	270
Newton_2_NB_B	light duty vehicle	40	6458	270
16B	light duty vehicle	50	15872	662
L14	light duty vehicle	10	324	15
15A_Q	light duty vehicle	10	5387	225
15B	light duty vehicle	40	4977	208
15	light duty vehicle	45	10364	433
L13	light duty vehicle	20	2412	102
L18	light duty vehicle	30	11309	472
L10	light duty vehicle	30	15548	649
L15	light duty vehicle	40	2565	108
L9	light duty vehicle	30	6372	267
L16	light duty vehicle	30	5063	212
L7	light duty vehicle	20	86	5
L20	light duty vehicle	20	12609	526
L19	light duty vehicle	20	432	19
16A	light duty vehicle	50	13041	544
L12	light duty vehicle	40	11466	479
church2	light duty vehicle	50	6481	271
church2_Q	light duty vehicle	50	6481	271
access2	light duty vehicle	40	0	0
church1_Q1	light duty vehicle	50	6481	271
church1	light duty vehicle	50	6481	271
church1_Q2	light duty vehicle	10	6440	269
slag	light duty vehicle	30	10495	438
golborne	light duty vehicle	30	8501	355
Nstonecross_1_Q1	light duty vehicle	10	5900	247
Nstonecross_1	light duty vehicle	50	5900	247
Nstonecross_1_Q2	light duty vehicle	10	5900	247
access1	light duty vehicle	40	0	0
Nstonecross_2_Q1	light duty vehicle	10	5900	247
Nstonecross_2	light duty vehicle	40	5900	247
Nstonecross_2_Q2	light duty vehicle	10	5900	247
L21	light duty vehicle	40	1130	48
L22	light duty vehicle	30	12213	510
L25	light duty vehicle	50	12816	535
L26	light duty vehicle	30	1242	53
L31	light duty vehicle	30	4770	200
L23	light duty vehicle	40	2867	120
L28	light duty vehicle	50	10966	458
L24	light duty vehicle	30	1161	49
L27	light duty vehicle	30	1044	45
L29	light duty vehicle	30	11264	470
L33	light duty vehicle	40	9863	412
ELR_3_EB	light duty vehicle	80	13860	579
ELR_3_WB	light duty vehicle	80	11264	470
5B	light duty vehicle	50	13833	577
9B	light duty vehicle	50	13860	579
Sstonecross	light duty vehicle	50	3628	152
ELR_1_EB	light duty vehicle	80	13343	557
ELR_1_WB	light duty vehicle	80	13833	577
L32	light duty vehicle	20	1103	47
5A	light duty vehicle	50	13343	557
L1	heavy duty vehicle	5	9	1
L3	heavy duty vehicle	5	734	32
12B	heavy duty vehicle	40	819	35
14A_Q	heavy duty vehicle	10	743	32
Church_Q	heavy duty vehicle	10	338	15
L5	heavy duty vehicle	5	329	15
L6	heavy duty vehicle	10	175	8
Keynon	heavy duty vehicle	40	189	9
L2	heavy duty vehicle	20	14	2
L4	heavy duty vehicle	10	900	39
14B	heavy duty vehicle	50	833	36
12A	heavy duty vehicle	20	914	39
Keynon_Q	heavy duty vehicle	10	189	9
Keynon_S	heavy duty vehicle	50	144	7
Newton_3_Q	heavy duty vehicle	10	964	41
Newton_3	heavy duty vehicle	50	964	41
Newton_2_SB	heavy duty vehicle	30	468	21
Newton_2_NB_A	heavy duty vehicle	10	419	18
Newton_2_NB_B	heavy duty vehicle	40	419	18
16B	heavy duty vehicle	50	968	41
L14	heavy duty vehicle	10	18	2
15A_Q	heavy duty vehicle	10	320	14
15B	heavy duty vehicle	40	284	13
15	heavy duty vehicle	35	604	26
L13	heavy duty vehicle	20	113	6

Scenario A

Source name	Vehicle category	Average speed (km/hr)	Total Vehicles	Vehicle Count (hourly average)
L18	heavy duty vehicle	30	711	31
L10	heavy duty vehicle	30	950	41
L15	heavy duty vehicle	40	171	8
L9	heavy duty vehicle	30	396	18
L16	heavy duty vehicle	30	302	14
L7	heavy duty vehicle	20	23	2
L20	heavy duty vehicle	20	1075	46
L19	heavy duty vehicle	20	14	2
16A	heavy duty vehicle	50	1089	46
L12	heavy duty vehicle	40	909	39
church2	heavy duty vehicle	50	338	15
church2_Q	heavy duty vehicle	50	338	15
access2	heavy duty vehicle	40	0	0
church1_Q1	heavy duty vehicle	50	336	15
church1	heavy duty vehicle	50	336	15
church1_Q2	heavy duty vehicle	10	329	15
slag	heavy duty vehicle	30	153	7
golborne	heavy duty vehicle	30	374	17
Nstonecross_1_Q1	heavy duty vehicle	10	509	22
Nstonecross_1	heavy duty vehicle	50	509	22
Nstonecross_1_Q2	heavy duty vehicle	10	509	22
access1	heavy duty vehicle	40	0	0
Nstonecross_2_Q1	heavy duty vehicle	10	509	22
Nstonecross_2	heavy duty vehicle	40	509	22
Nstonecross_2_Q2	heavy duty vehicle	10	509	22
L21	heavy duty vehicle	40	95	5
L22	heavy duty vehicle	30	679	29
L25	heavy duty vehicle	50	743	32
L26	heavy duty vehicle	30	0	1
L31	heavy duty vehicle	30	414	18
L23	heavy duty vehicle	40	140	7
L28	heavy duty vehicle	50	810	35
L24	heavy duty vehicle	30	41	3
L27	heavy duty vehicle	30	0	1
L29	heavy duty vehicle	30	851	36
L33	heavy duty vehicle	40	805	35
ELR_3_EB	heavy duty vehicle	80	743	32
ELR_3_WB	heavy duty vehicle	80	851	36
5B	heavy duty vehicle	50	950	41
9B	heavy duty vehicle	50	743	32
Sstonecross	heavy duty vehicle	50	10	1
ELR_1_EB	heavy duty vehicle	80	774	33
ELR_1_WB	heavy duty vehicle	80	950	41
L32	heavy duty vehicle	20	5	1
5A	heavy duty vehicle	50	774	33
L40	light duty vehicle	20	15706	655
L40	heavy duty vehicle	10	1027	44
Keynon_S_Q	light duty vehicle	10	5891	246
Keynon_S_Q	heavy duty vehicle	10	144	7

R1803: Land East of Stone Cross Lane North, Lowton
R1803-R01-Appendix C
ADMS-Roads Model Input Data

Scenario B

Source name	Vehicle category	Average speed (km/hr)	Total Vehicles	Vehicle Count (hourly average)
L1	light duty vehicle	5	446	20
L3	light duty vehicle	5	14353	599
12B	light duty vehicle	40	14581	609
14A_Q	light duty vehicle	10	14798	618
Church_Q	light duty vehicle	10	6706	280
L5	light duty vehicle	5	6260	262
L6	light duty vehicle	10	5144	215
Keynon	light duty vehicle	40	5221	219
L2	light duty vehicle	20	77	4
L4	light duty vehicle	10	12530	523
14B	light duty vehicle	50	12119	506
12A	light duty vehicle	20	12607	526
Keynon_Q	light duty vehicle	10	5221	219
Keynon_S	light duty vehicle	50	6055	253
Newton_3_Q	light duty vehicle	10	13771	575
Newton_3	light duty vehicle	50	13771	575
Newton_2_SB	light duty vehicle	30	6779	283
Newton_2_NB_A	light duty vehicle	10	6977	292
Newton_2_NB_B	light duty vehicle	40	6977	292
16B	light duty vehicle	50	16528	690
L14	light duty vehicle	10	324	15
15A_Q	light duty vehicle	10	5966	250
15B	light duty vehicle	40	5673	237
15	light duty vehicle	45	11639	486
L13	light duty vehicle	20	2775	117
L18	light duty vehicle	30	11779	492
L10	light duty vehicle	30	16204	676
L15	light duty vehicle	40	2898	122
L9	light duty vehicle	30	6891	288
L16	light duty vehicle	30	5642	236
L7	light duty vehicle	20	86	5
L20	light duty vehicle	20	13663	570
L19	light duty vehicle	20	432	19
16A	light duty vehicle	50	14095	588
L12	light duty vehicle	40	12526	523
church2	light duty vehicle	50	6706	280
church2_Q	light duty vehicle	10	6706	280
access2	light duty vehicle	40	0	1
church1_Q1	light duty vehicle	10	6706	280
church1	light duty vehicle	50	6706	280
church1_Q2	light duty vehicle	10	6666	279
slag	light duty vehicle	30	11937	498
golborne	light duty vehicle	30	8660	362
Nstonecross_1_Q1	light duty vehicle	10	7277	304
Nstonecross_1	light duty vehicle	50	7277	304
Nstonecross_1_Q2	light duty vehicle	10	7277	304
access1	light duty vehicle	40	0	1

Scenario B

Source name	Vehicle category	Average speed (km/hr)	Total Vehicles	Vehicle Count (hourly average)
Nstonecross_2_Q1	light duty vehicle	10	7277	304
Nstonecross_2	light duty vehicle	40	7277	304
Nstonecross_2_Q2	light duty vehicle	10	7277	304
L21	light duty vehicle	40	1566	66
L22	light duty vehicle	30	12953	541
L25	light duty vehicle	50	13556	566
L26	light duty vehicle	30	1476	63
L31	light duty vehicle	30	5711	239
L23	light duty vehicle	40	3344	140
L28	light duty vehicle	50	11894	497
L24	light duty vehicle	30	1377	58
L27	light duty vehicle	30	1044	45
L29	light duty vehicle	30	12191	509
L33	light duty vehicle	40	10575	442
ELR_3_EB	light duty vehicle	80	14600	609
ELR_3_WB	light duty vehicle	80	12191	509
5B	light duty vehicle	50	15238	636
9B	light duty vehicle	50	14600	609
Sstonecross	light duty vehicle	50	4078	171
ELR_1_EB	light duty vehicle	80	14519	606
ELR_1_WB	light duty vehicle	80	15238	636
L32	light duty vehicle	20	1319	56
5A	light duty vehicle	50	14519	606
L1	heavy duty vehicle	5	9	1
L3	heavy duty vehicle	5	734	32
12B	heavy duty vehicle	40	819	35
14A_Q	heavy duty vehicle	10	743	32
Church_Q	heavy duty vehicle	10	338	15
L5	heavy duty vehicle	5	329	15
L6	heavy duty vehicle	10	175	8
Keynon	heavy duty vehicle	40	189	9
L2	heavy duty vehicle	20	14	2
L4	heavy duty vehicle	10	900	39
14B	heavy duty vehicle	50	833	36
12A	heavy duty vehicle	20	914	39
Keynon_Q	heavy duty vehicle	10	189	9
Keynon_S	heavy duty vehicle	50	144	7
Newton_3_Q	heavy duty vehicle	10	964	41
Newton_3	heavy duty vehicle	50	964	41
Newton_2_SB	heavy duty vehicle	30	468	21
Newton_2_NB_A	heavy duty vehicle	10	419	18
Newton_2_NB_B	heavy duty vehicle	40	419	18
16B	heavy duty vehicle	50	968	41
L14	heavy duty vehicle	10	18	2
15A_Q	heavy duty vehicle	10	320	14
15B	heavy duty vehicle	40	284	13
15	heavy duty vehicle	35	604	26
L13	heavy duty vehicle	20	113	6
L18	heavy duty vehicle	30	711	31
L10	heavy duty vehicle	30	950	41
L15	heavy duty vehicle	40	171	8
L9	heavy duty vehicle	30	396	18

Scenario B

Source name	Vehicle category	Average speed (km/hr)	Total Vehicles	Vehicle Count (hourly average)
L16	heavy duty vehicle	30	302	14
L7	heavy duty vehicle	20	23	2
L20	heavy duty vehicle	20	1075	46
L19	heavy duty vehicle	20	14	2
16A	heavy duty vehicle	50	1089	46
L12	heavy duty vehicle	40	909	39
church2	heavy duty vehicle	50	338	15
church2_Q	heavy duty vehicle	10	338	15
access2	heavy duty vehicle	40	0	1
church1_Q1	heavy duty vehicle	10	338	15
church1	heavy duty vehicle	50	338	15
church1_Q2	heavy duty vehicle	10	329	15
slag	heavy duty vehicle	30	153	7
golborne	heavy duty vehicle	30	374	17
Nstonecross_1_Q1	heavy duty vehicle	10	509	22
Nstonecross_1	heavy duty vehicle	50	509	22
Nstonecross_1_Q2	heavy duty vehicle	10	509	22
access1	heavy duty vehicle	40	0	1
Nstonecross_2_Q1	heavy duty vehicle	10	509	22
Nstonecross_2	heavy duty vehicle	40	509	22
Nstonecross_2_Q2	heavy duty vehicle	10	509	22
L21	heavy duty vehicle	40	95	5
L22	heavy duty vehicle	30	679	29
L25	heavy duty vehicle	50	743	32
L26	heavy duty vehicle	30	0	1
L31	heavy duty vehicle	30	414	18
L23	heavy duty vehicle	40	140	7
L28	heavy duty vehicle	50	810	35
L24	heavy duty vehicle	30	41	3
L27	heavy duty vehicle	30	0	1
L29	heavy duty vehicle	30	851	36
L33	heavy duty vehicle	40	805	35
ELR_3_EB	heavy duty vehicle	80	743	32
ELR_3_WB	heavy duty vehicle	80	851	36
5B	heavy duty vehicle	50	950	41
9B	heavy duty vehicle	50	743	32
Sstonecross	heavy duty vehicle	50	10	1
ELR_1_EB	heavy duty vehicle	80	774	33
ELR_1_WB	heavy duty vehicle	80	950	41
L32	heavy duty vehicle	20	5	1
5A	heavy duty vehicle	50	774	33
L40	light duty vehicle	20	18491	771
L40	heavy duty vehicle	10	1027	44
Keynon_S_Q	light duty vehicle	10	6055	253
Keynon_S_Q	heavy duty vehicle	10	144	7

R1803: Land East of Stone Cross Lane North, Lowton
R1803-R01-Appendix C
ADMS-Roads Model Input Data

Scenario C

Source name	Vehicle category	Average speed (km/hr)	Total Vehicles	Vehicle Count (hourly average)
L1	light duty vehicle	5	493	22
L3	light duty vehicle	5	14612	610
12B	light duty vehicle	40	14989	626
14A_Q	light duty vehicle	10	15105	630
Church_Q	light duty vehicle	10	7479	313
L5	light duty vehicle	5	6986	292
L6	light duty vehicle	10	5555	232
Keynon	light duty vehicle	40	5632	236
L2	light duty vehicle	20	77	4
L4	light duty vehicle	10	12901	539
14B	light duty vehicle	50	12396	518
12A	light duty vehicle	20	12978	542
Keynon_Q	light duty vehicle	10	5632	236
Keynon_S	light duty vehicle	50	6344	265
Newton_3_Q	light duty vehicle	10	13894	580
Newton_3	light duty vehicle	50	13894	580
Newton_2_SB	light duty vehicle	30	6779	283
Newton_2_NB_A	light duty vehicle	10	6977	292
Newton_2_NB_B	light duty vehicle	40	6977	292
16B	light duty vehicle	50	16869	704
L14	light duty vehicle	10	324	15
15A_Q	light duty vehicle	10	6028	252
15B	light duty vehicle	40	5740	240
15	light duty vehicle	45	11768	491
L13	light duty vehicle	20	2842	119
L18	light duty vehicle	30	12120	506
L10	light duty vehicle	30	16545	690
L15	light duty vehicle	40	2898	122
L9	light duty vehicle	30	6891	288
L16	light duty vehicle	30	5704	239
L7	light duty vehicle	20	86	5
L20	light duty vehicle	20	13971	583
L19	light duty vehicle	20	432	19
16A	light duty vehicle	50	14403	601
L12	light duty vehicle	40	12806	535
church2	light duty vehicle	50	7479	313
church2_Q	light duty vehicle	10	7479	313
access2	light duty vehicle	40	1422	60
church1_Q1	light duty vehicle	10	7355	307
church1	light duty vehicle	50	7355	307
church1_Q2	light duty vehicle	10	7315	306
slag	light duty vehicle	30	12910	539
golborne	light duty vehicle	30	9215	385
Nstonecross_1_Q1	light duty vehicle	10	8155	341
Nstonecross_1	light duty vehicle	50	8155	341
Nstonecross_1_Q2	light duty vehicle	10	8155	341
access1	light duty vehicle	40	2134	90

Scenario C

Source name	Vehicle category	Average speed (km/hr)	Total Vehicles	Vehicle Count (hourly average)
Nstonecross_2_Q1	light duty vehicle	10	8531	356
Nstonecross_2	light duty vehicle	40	8531	356
Nstonecross_2_Q2	light duty vehicle	10	8531	356
L21	light duty vehicle	40	1822	77
L22	light duty vehicle	30	12996	543
L25	light duty vehicle	50	13863	579
L26	light duty vehicle	30	1507	64
L31	light duty vehicle	30	6709	281
L23	light duty vehicle	40	3782	159
L28	light duty vehicle	50	11929	498
L24	light duty vehicle	30	1647	70
L27	light duty vehicle	30	1044	45
L29	light duty vehicle	30	12468	521
L33	light duty vehicle	40	10582	442
ELR_3_EB	light duty vehicle	80	14907	622
ELR_3_WB	light duty vehicle	80	12468	521
5B	light duty vehicle	50	15711	656
9B	light duty vehicle	50	14907	622
Sstonecross	light duty vehicle	50	4142	174
ELR_1_EB	light duty vehicle	80	14818	618
ELR_1_WB	light duty vehicle	80	15711	656
L32	light duty vehicle	20	1347	57
5A	light duty vehicle	50	14818	618
L1	heavy duty vehicle	5	9	1
L3	heavy duty vehicle	5	734	32
12B	heavy duty vehicle	40	819	35
14A_Q	heavy duty vehicle	10	743	32
Church_Q	heavy duty vehicle	10	338	15
L5	heavy duty vehicle	5	329	15
L6	heavy duty vehicle	10	175	8
Keynon	heavy duty vehicle	40	189	9
L2	heavy duty vehicle	20	14	2
L4	heavy duty vehicle	10	900	39
14B	heavy duty vehicle	50	833	36
12A	heavy duty vehicle	20	914	39
Keynon_Q	heavy duty vehicle	10	189	9
Keynon_S	heavy duty vehicle	50	144	7
Newton_3_Q	heavy duty vehicle	10	964	41
Newton_3	heavy duty vehicle	50	964	41
Newton_2_SB	heavy duty vehicle	30	468	21
Newton_2_NB_A	heavy duty vehicle	10	419	18
Newton_2_NB_B	heavy duty vehicle	40	419	18
16B	heavy duty vehicle	50	968	41
L14	heavy duty vehicle	10	18	2
15A_Q	heavy duty vehicle	10	320	14
15B	heavy duty vehicle	40	284	13
15	heavy duty vehicle	35	604	26
L13	heavy duty vehicle	20	113	6
L18	heavy duty vehicle	30	711	31
L10	heavy duty vehicle	30	950	41
L15	heavy duty vehicle	40	171	8
L9	heavy duty vehicle	30	396	18

Scenario C

Source name	Vehicle category	Average speed (km/hr)	Total Vehicles	Vehicle Count (hourly average)
L16	heavy duty vehicle	30	302	14
L7	heavy duty vehicle	20	23	2
L20	heavy duty vehicle	20	1075	46
L19	heavy duty vehicle	20	14	2
16A	heavy duty vehicle	50	1089	46
L12	heavy duty vehicle	40	909	39
church2	heavy duty vehicle	50	338	15
church2_Q	heavy duty vehicle	10	338	15
access2	heavy duty vehicle	40	0	1
church1_Q1	heavy duty vehicle	10	338	15
church1	heavy duty vehicle	50	338	15
church1_Q2	heavy duty vehicle	10	329	15
slag	heavy duty vehicle	30	153	7
golborne	heavy duty vehicle	30	374	17
Nstonecross_1_Q1	heavy duty vehicle	10	509	22
Nstonecross_1	heavy duty vehicle	50	509	22
Nstonecross_1_Q2	heavy duty vehicle	10	509	22
access1	heavy duty vehicle	40	0	1
Nstonecross_2_Q1	heavy duty vehicle	10	509	22
Nstonecross_2	heavy duty vehicle	40	509	22
Nstonecross_2_Q2	heavy duty vehicle	10	509	22
L21	heavy duty vehicle	40	95	5
L22	heavy duty vehicle	30	679	29
L25	heavy duty vehicle	50	743	32
L26	heavy duty vehicle	30	0	1
L31	heavy duty vehicle	30	414	18
L23	heavy duty vehicle	40	140	7
L28	heavy duty vehicle	50	810	35
L24	heavy duty vehicle	30	41	3
L27	heavy duty vehicle	30	0	1
L29	heavy duty vehicle	30	851	36
L33	heavy duty vehicle	40	805	35
ELR_3_EB	heavy duty vehicle	80	743	32
ELR_3_WB	heavy duty vehicle	80	851	36
5B	heavy duty vehicle	50	950	41
9B	heavy duty vehicle	50	743	32
Sstonecross	heavy duty vehicle	50	10	1
ELR_1_EB	heavy duty vehicle	80	774	33
ELR_1_WB	heavy duty vehicle	80	950	41
L32	heavy duty vehicle	20	5	1
5A	heavy duty vehicle	50	774	33
L40	light duty vehicle	20	18842	786
L40	heavy duty vehicle	10	1027	44
Keynon_S_Q	light duty vehicle	10	6344	265
Keynon_S_Q	heavy duty vehicle	10	144	7

R1803: Land East of Stone Cross Lane North, Lowton
R1803-R01-Appendix C
ADMS-Roads Model Input Data

Scenario D

Source name	Vehicle category	Average speed (km/hr)	Total Vehicles	Vehicle Count (hourly average)
L1	light duty vehicle	5	446	20
L3	light duty vehicle	5	14353	599
12B	light duty vehicle	40	14581	609
14A_Q	light duty vehicle	10	14798	618
Church_Q	light duty vehicle	10	6706	280
L5	light duty vehicle	5	6260	262
L6	light duty vehicle	10	5144	215
Keynon	light duty vehicle	40	5221	219
L2	light duty vehicle	20	77	4
L4	light duty vehicle	10	12530	523
14B	light duty vehicle	50	12119	506
12A	light duty vehicle	20	12607	526
Keynon_Q	light duty vehicle	10	5221	219
Keynon_S	light duty vehicle	50	6055	253
Newton_3_Q	light duty vehicle	10	13771	575
Newton_3	light duty vehicle	50	13771	575
Newton_2_SB	light duty vehicle	30	6779	283
Newton_2_NB_A	light duty vehicle	10	6977	292
Newton_2_NB_B	light duty vehicle	40	6977	292
16B	light duty vehicle	50	16528	690
L14	light duty vehicle	10	324	15
15A_Q	light duty vehicle	10	5966	250
15B	light duty vehicle	40	5673	237
15	light duty vehicle	45	11639	486
L13	light duty vehicle	20	2775	117
L18	light duty vehicle	30	11779	492
L10	light duty vehicle	30	16204	676
L15	light duty vehicle	40	2898	122
L9	light duty vehicle	30	6891	288
L16	light duty vehicle	30	5642	236
L7	light duty vehicle	20	86	5
L20	light duty vehicle	20	13663	570
L19	light duty vehicle	20	432	19
16A	light duty vehicle	50	14095	588
L12	light duty vehicle	40	12526	523
church2	light duty vehicle	50	6706	280
church2_Q	light duty vehicle	10	6706	280
access2	light duty vehicle	40	0	1
church1_Q1	light duty vehicle	10	6706	280
church1	light duty vehicle	50	6706	280
church1_Q2	light duty vehicle	10	6666	279
slag	light duty vehicle	30	11937	498
golborne	light duty vehicle	30	8660	362
Nstonecross_1_Q1	light duty vehicle	10	7277	304
Nstonecross_1	light duty vehicle	50	7277	304
Nstonecross_1_Q2	light duty vehicle	10	7277	304
access1	light duty vehicle	40	0	1

Scenario D

Source name	Vehicle category	Average speed (km/hr)	Total Vehicles	Vehicle Count (hourly average)
Nstonecross_2_Q1	light duty vehicle	10	7277	304
Nstonecross_2	light duty vehicle	40	7277	304
Nstonecross_2_Q2	light duty vehicle	10	7277	304
L21	light duty vehicle	40	1566	66
L22	light duty vehicle	30	12953	541
L25	light duty vehicle	50	13556	566
L26	light duty vehicle	30	1476	63
L31	light duty vehicle	30	5711	239
L23	light duty vehicle	40	3344	140
L28	light duty vehicle	50	11894	497
L24	light duty vehicle	30	1377	58
L27	light duty vehicle	30	1044	45
L29	light duty vehicle	30	12191	509
L33	light duty vehicle	40	10575	442
ELR_3_EB	light duty vehicle	80	14600	609
ELR_3_WB	light duty vehicle	80	12191	509
5B	light duty vehicle	50	15238	636
9B	light duty vehicle	50	14600	609
Sstonecross	light duty vehicle	50	4078	171
ELR_1_EB	light duty vehicle	80	14519	606
ELR_1_WB	light duty vehicle	80	15238	636
L32	light duty vehicle	20	1319	56
5A	light duty vehicle	50	14519	606
L1	heavy duty vehicle	5	9	1
L3	heavy duty vehicle	5	734	32
12B	heavy duty vehicle	40	819	35
14A_Q	heavy duty vehicle	10	743	32
Church_Q	heavy duty vehicle	10	338	15
L5	heavy duty vehicle	5	329	15
L6	heavy duty vehicle	10	175	8
Keynon	heavy duty vehicle	40	189	9
L2	heavy duty vehicle	20	14	2
L4	heavy duty vehicle	10	900	39
14B	heavy duty vehicle	50	833	36
12A	heavy duty vehicle	20	914	39
Keynon_Q	heavy duty vehicle	10	189	9
Keynon_S	heavy duty vehicle	50	144	7
Newton_3_Q	heavy duty vehicle	10	964	41
Newton_3	heavy duty vehicle	50	964	41
Newton_2_SB	heavy duty vehicle	30	468	21
Newton_2_NB_A	heavy duty vehicle	10	419	18
Newton_2_NB_B	heavy duty vehicle	40	419	18
16B	heavy duty vehicle	50	968	41
L14	heavy duty vehicle	10	18	2
15A_Q	heavy duty vehicle	10	320	14
15B	heavy duty vehicle	40	284	13
15	heavy duty vehicle	35	604	26
L13	heavy duty vehicle	20	113	6
L18	heavy duty vehicle	30	711	31
L10	heavy duty vehicle	30	950	41
L15	heavy duty vehicle	40	171	8
L9	heavy duty vehicle	30	396	18

Scenario D

Source name	Vehicle category	Average speed (km/hr)	Total Vehicles	Vehicle Count (hourly average)
L16	heavy duty vehicle	30	302	14
L7	heavy duty vehicle	20	23	2
L20	heavy duty vehicle	20	1075	46
L19	heavy duty vehicle	20	14	2
16A	heavy duty vehicle	50	1089	46
L12	heavy duty vehicle	40	909	39
church2	heavy duty vehicle	50	338	15
church2_Q	heavy duty vehicle	10	338	15
access2	heavy duty vehicle	40	0	1
church1_Q1	heavy duty vehicle	10	338	15
church1	heavy duty vehicle	50	338	15
church1_Q2	heavy duty vehicle	10	329	15
slag	heavy duty vehicle	30	153	7
golborne	heavy duty vehicle	30	374	17
Nstonecross_1_Q1	heavy duty vehicle	10	509	22
Nstonecross_1	heavy duty vehicle	50	509	22
Nstonecross_1_Q2	heavy duty vehicle	10	509	22
access1	heavy duty vehicle	40	0	1
Nstonecross_2_Q1	heavy duty vehicle	10	509	22
Nstonecross_2	heavy duty vehicle	40	509	22
Nstonecross_2_Q2	heavy duty vehicle	10	509	22
L21	heavy duty vehicle	40	95	5
L22	heavy duty vehicle	30	679	29
L25	heavy duty vehicle	50	743	32
L26	heavy duty vehicle	30	0	1
L31	heavy duty vehicle	30	414	18
L23	heavy duty vehicle	40	140	7
L28	heavy duty vehicle	50	810	35
L24	heavy duty vehicle	30	41	3
L27	heavy duty vehicle	30	0	1
L29	heavy duty vehicle	30	851	36
L33	heavy duty vehicle	40	805	35
ELR_3_EB	heavy duty vehicle	80	743	32
ELR_3_WB	heavy duty vehicle	80	851	36
5B	heavy duty vehicle	50	950	41
9B	heavy duty vehicle	50	743	32
Sstonecross	heavy duty vehicle	50	10	1
ELR_1_EB	heavy duty vehicle	80	774	33
ELR_1_WB	heavy duty vehicle	80	950	41
L32	heavy duty vehicle	20	5	1
5A	heavy duty vehicle	50	774	33
L40	light duty vehicle	20	18491	771
L40	heavy duty vehicle	10	1027	44
Keynon_S_Q	light duty vehicle	10	6055	253
Keynon_S_Q	heavy duty vehicle	10	144	7

R1803: Land East of Stone Cross Lane North, Lowton
R1803-R01-Appendix C
ADMS-Roads Model Input Data

Scenario E

Source name	Vehicle category	Average speed (km/hr)	Total Vehicles	Vehicle Count (hourly average)
L1	light duty vehicle	5	493	22
L3	light duty vehicle	5	14612	610
12B	light duty vehicle	40	14989	626
14A_Q	light duty vehicle	10	15105	630
Church_Q	light duty vehicle	10	7479	313
L5	light duty vehicle	5	6986	292
L6	light duty vehicle	10	5555	232
Keynon	light duty vehicle	40	5632	236
L2	light duty vehicle	20	77	4
L4	light duty vehicle	10	12901	539
14B	light duty vehicle	50	12396	518
12A	light duty vehicle	20	12978	542
Keynon_Q	light duty vehicle	10	5632	236
Keynon_S	light duty vehicle	50	6344	265
Newton_3_Q	light duty vehicle	10	13894	580
Newton_3	light duty vehicle	50	13894	580
Newton_2_SB	light duty vehicle	30	6779	283
Newton_2_NB_A	light duty vehicle	10	6977	292
Newton_2_NB_B	light duty vehicle	40	6977	292
16B	light duty vehicle	50	16869	704
L14	light duty vehicle	10	324	15
15A_Q	light duty vehicle	10	6028	252
15B	light duty vehicle	40	5740	240
15	light duty vehicle	45	11768	491
L13	light duty vehicle	20	2842	119
L18	light duty vehicle	30	12120	506
L10	light duty vehicle	30	16545	690
L15	light duty vehicle	40	2898	122
L9	light duty vehicle	30	6891	288
L16	light duty vehicle	30	5704	239
L7	light duty vehicle	20	86	5
L20	light duty vehicle	20	13971	583
L19	light duty vehicle	20	432	19
16A	light duty vehicle	50	14403	601
L12	light duty vehicle	40	12806	535
church2	light duty vehicle	50	7479	313
church2_Q	light duty vehicle	10	7479	313
access2	light duty vehicle	40	1422	60
church1_Q1	light duty vehicle	10	7355	307
church1	light duty vehicle	50	7355	307
church1_Q2	light duty vehicle	10	7315	306
slag	light duty vehicle	30	12910	539
golborne	light duty vehicle	30	9215	385
Nstonecross_1_Q1	light duty vehicle	10	8155	341
Nstonecross_1	light duty vehicle	50	8155	341
Nstonecross_1_Q2	light duty vehicle	10	8155	341
access1	light duty vehicle	40	2134	90

Nstonecross_2_Q1	light duty vehicle	10	8531	356
Nstonecross_2	light duty vehicle	40	8531	356
Nstonecross_2_Q2	light duty vehicle	10	8531	356
L21	light duty vehicle	40	1822	77
L22	light duty vehicle	30	12996	543
L25	light duty vehicle	50	13863	579
L26	light duty vehicle	30	1507	64
L31	light duty vehicle	30	6709	281
L23	light duty vehicle	40	3782	159
L28	light duty vehicle	50	11929	498
L24	light duty vehicle	30	1647	70
L27	light duty vehicle	30	1044	45
L29	light duty vehicle	30	12468	521
L33	light duty vehicle	40	10582	442
ELR_3_EB	light duty vehicle	80	14907	622
ELR_3_WB	light duty vehicle	80	12468	521
5B	light duty vehicle	50	15711	656
9B	light duty vehicle	50	14907	622
Sstonecross	light duty vehicle	50	4142	174
ELR_1_EB	light duty vehicle	80	14818	618
ELR_1_WB	light duty vehicle	80	15711	656
L32	light duty vehicle	20	1347	57
5A	light duty vehicle	50	14818	618
L1	heavy duty vehicle	5	9	1
L3	heavy duty vehicle	5	734	32
12B	heavy duty vehicle	40	819	35
14A_Q	heavy duty vehicle	10	743	32
Church_Q	heavy duty vehicle	10	338	15
L5	heavy duty vehicle	5	329	15
L6	heavy duty vehicle	10	175	8
Keynon	heavy duty vehicle	40	189	9
L2	heavy duty vehicle	20	14	2
L4	heavy duty vehicle	10	900	39
14B	heavy duty vehicle	50	833	36
12A	heavy duty vehicle	20	914	39
Keynon_Q	heavy duty vehicle	10	189	9
Keynon_S	heavy duty vehicle	50	144	7
Newton_3_Q	heavy duty vehicle	10	964	41
Newton_3	heavy duty vehicle	50	964	41
Newton_2_SB	heavy duty vehicle	30	468	21
Newton_2_NB_A	heavy duty vehicle	10	419	18
Newton_2_NB_B	heavy duty vehicle	40	419	18
16B	heavy duty vehicle	50	968	41
L14	heavy duty vehicle	10	18	2
15A_Q	heavy duty vehicle	10	320	14
15B	heavy duty vehicle	40	284	13
15	heavy duty vehicle	35	604	26
L13	heavy duty vehicle	20	113	6
L18	heavy duty vehicle	30	711	31
L10	heavy duty vehicle	30	950	41
L15	heavy duty vehicle	40	171	8
L9	heavy duty vehicle	30	396	18
L16	heavy duty vehicle	30	302	14
L7	heavy duty vehicle	20	23	2
L20	heavy duty vehicle	20	1075	46
L19	heavy duty vehicle	20	14	2

16A	heavy duty vehicle	50	1089	46
L12	heavy duty vehicle	40	909	39
church2	heavy duty vehicle	50	338	15
church2_Q	heavy duty vehicle	10	338	15
access2	heavy duty vehicle	40	0	1
church1_Q1	heavy duty vehicle	10	338	15
church1	heavy duty vehicle	50	338	15
church1_Q2	heavy duty vehicle	10	329	15
slag	heavy duty vehicle	30	153	7
golborne	heavy duty vehicle	30	374	17
Nstonecross_1_Q1	heavy duty vehicle	10	509	22
Nstonecross_1	heavy duty vehicle	50	509	22
Nstonecross_1_Q2	heavy duty vehicle	10	509	22
access1	heavy duty vehicle	40	0	1
Nstonecross_2_Q1	heavy duty vehicle	10	509	22
Nstonecross_2	heavy duty vehicle	40	509	22
Nstonecross_2_Q2	heavy duty vehicle	10	509	22
L21	heavy duty vehicle	40	95	5
L22	heavy duty vehicle	30	679	29
L25	heavy duty vehicle	50	743	32
L26	heavy duty vehicle	30	0	1
L31	heavy duty vehicle	30	414	18
L23	heavy duty vehicle	40	140	7
L28	heavy duty vehicle	50	810	35
L24	heavy duty vehicle	30	41	3
L27	heavy duty vehicle	30	0	1
L29	heavy duty vehicle	30	851	36
L33	heavy duty vehicle	40	805	35
ELR_3_EB	heavy duty vehicle	80	743	32
ELR_3_WB	heavy duty vehicle	80	851	36
5B	heavy duty vehicle	50	950	41
9B	heavy duty vehicle	50	743	32
Sstonecross	heavy duty vehicle	50	10	1
ELR_1_EB	heavy duty vehicle	80	774	33
ELR_1_WB	heavy duty vehicle	80	950	41
L32	heavy duty vehicle	20	5	1
5A	heavy duty vehicle	50	774	33
L40	light duty vehicle	20	18842	786
L40	heavy duty vehicle	10	1027	44
Keynon_S_Q	light duty vehicle	10	6344	265
Keynon_S_Q	heavy duty vehicle	10	144	7

APPENDIX D

Results of ADMS-Roads Modelling

R1803 Lane East of Stone Cross Lane, Lowton
Appendix D Summary of ADMS-Roads Results

			Scenario A 2011 Baseline							**Scenario B 2013 Without Development**							**Scenario C 2013 With Development**											
Receptor Name	X	Y	Modelled NOx	Adjusted NOx (x1.17)	Background NO2	**Total NO2 (adjusted)**	Modelled PM10	Backgroun d PM10	**Total PM10**	Modelled NOx	Adjusted NOx (x1.17)	Backgroun d NO2	**Total NO2**	Modelled PM10	Background PM10	**Total PM10**	Modelled NOx	Adjusted NOx (x1.17)	Backgroun d NO2	**Total NO2**	Modelled PM10	Background PM10	**Total PM10**	% change NO2	magnitude of change	descriptor	% change PM10	magnitude of change	descriptor
Church Lane / A580 junction (J4)																												
1	362133	396948.4	47.40	55.45	21.12	44.51	3.07	15.84	18.91	44.35	51.89	19.49	42.52	2.84	15.48	18.32	45.32	53.03	19.49	42.96	2.93	15.48	18.41	1.10	Small	Slight adverse	0.24	Imperceptible	Neglible
2	362127.7	396956.1	40.71	47.63	21.12	41.66	2.60	15.84	18.44	38.08	44.56	19.49	39.65	2.41	15.48	17.89	38.99	45.62	19.49	40.08	2.50	15.48	17.98	1.08	Small	Slight adverse	0.22	Imperceptible	Neglible
3	362121.9	396964.3	35.75	41.83	21.12	39.46	2.27	15.84	18.11	33.43	39.12	19.49	37.45	2.11	15.48	17.59	34.29	40.12	19.49	37.86	2.19	15.48	17.67	1.02	Small	Slight adverse	0.20	Imperceptible	Neglible
4	362155.1	396960	42.22	49.39	21.12	42.31	2.78	15.84	18.62	39.48	46.19	19.49	40.3	2.57	15.48	18.05	40.56	47.45	19.49	40.8	2.67	15.48	18.15	1.25	Small	Slight adverse	0.27	Imperceptible	Neglible
5	362148.9	396969.8	37.60	43.99	21.12	40.29	2.42	15.84	18.26	35.17	41.15	19.49	38.28	2.24	15.48	17.72	36.19	42.34	19.49	38.77	2.34	15.48	17.82	1.23	Small	Slight adverse	0.25	Imperceptible	Neglible
62	362118.8	396890.5	23.99	28.06	21.12	33.93	1.62	15.84	17.46	22.25	26.03	19.49	31.87	1.54	15.48	17.02	22.58	26.42	19.49	32.05	1.57	15.48	17.05	0.45	Imperceptible	Neglible	0.09	Imperceptible	Neglible
63	362122.2	396939.7	53.39	62.46	21.12	46.96	3.37	15.84	19.21	49.99	58.49	19.49	45.01	3.13	15.48	18.61	50.75	59.38	19.49	45.34	3.21	15.48	18.69	0.83	Imperceptible	Neglible	0.19	Imperceptible	Neglible
64	362199.4	396879.5	28.10	32.88	21.12	35.92	1.84	15.84	17.68	26.14	30.58	19.49	33.86	1.73	15.48	17.21	26.69	31.23	19.49	34.14	1.79	15.48	17.27	0.70	Imperceptible	Neglible	0.14	Imperceptible	Neglible
99	362211.5	396944.3	39.61	46.34	21.12	41.18	2.58	15.84	18.42	36.95	43.24	19.49	39.13	2.46	15.48	17.94	37.58	43.97	19.49	39.42	2.52	15.48	18.00	0.72	Imperceptible	Neglible	0.16	Imperceptible	Neglible
DT52	362137	396947	51.63	60.41	21.12	46.25	3.38	15.84	19.22	48.32	56.53	19.49	44.28	3.11	15.48	18.59	49.43	57.83	19.49	44.77	3.22	15.48	18.70	1.23	Small	Slight adverse	0.27	Imperceptible	Neglible
Church Lane																												
6	362105.1	396987.7	25.67	30.04	21.12	34.75	1.67	15.84	17.51	23.95	28.02	19.49	32.75	1.56	15.48	17.04	24.62	28.80	19.49	33.09	1.63	15.48	17.11	0.85	Imperceptible	Neglible	0.16	Imperceptible	Neglible
7	362128.7	396998.9	28.91	33.82	21.12	36.30	1.86	15.84	17.70	26.97	31.56	19.49	34.28	1.73	15.48	17.21	27.87	32.61	19.49	34.73	1.82	15.48	17.30	1.12	Small	Neglible	0.22	Imperceptible	Neglible
8	362105.6	397038.3	18.79	21.99	19.71	30.01	1.36	15.25	16.61	17.40	20.35	18.31	28.21	1.29	14.91	16.20	18.02	21.08	18.31	28.54	1.36	14.91	16.27	0.82	Imperceptible	Neglible	0.17	Imperceptible	Neglible
9	362069.5	397027.3	14.51	16.98	19.71	27.78	1.02	15.25	16.27	13.51	15.80	18.31	26.09	0.97	14.91	15.88	13.88	16.24	18.31	26.29	1.02	14.91	15.93	0.50	Imperceptible	Neglible	0.10	Imperceptible	Neglible
10	362084.8	397076.7	15.59	18.24	19.71	28.35	1.17	15.25	16.42	14.54	17.02	18.31	26.66	1.12	14.91	16.03	15.13	17.70	18.31	26.98	1.19	14.91	16.10	0.80	Imperceptible	Neglible	0.17	Imperceptible	Neglible
11	362042.2	397084.1	11.13	13.02	19.71	25.97	0.84	15.25	16.09	10.60	12.40	18.31	24.47	0.80	14.91	15.71	10.99	12.86	18.31	24.69	0.84	14.91	15.75	0.55	Imperceptible	Neglible	0.11	Imperceptible	Neglible
12	362065.1	397113	13.90	16.26	19.71	27.46	1.10	15.25	16.35	13.66	15.98	18.31	26.17	1.04	14.91	15.95	14.27	16.69	18.31	26.51	1.11	14.91	16.02	0.85	Imperceptible	Neglible	0.17	Imperceptible	Neglible
13	362021.2	397132.2	10.46	12.24	19.71	25.61	0.93	15.25	16.18	13.03	15.24	18.31	25.82	0.87	14.91	15.78	13.70	16.03	18.31	26.2	0.94	14.91	15.85	0.95	Imperceptible	Neglible	0.17	Imperceptible	Neglible
14	362037.5	397151.2	15.10	17.67	19.71	28.09	1.54	15.25	16.79	23.45	27.44	18.31	31.4	1.42	14.91	16.33	24.67	28.87	18.31	32.03	1.53	14.91	16.44	1.58	Small	Neglible	0.29	Imperceptible	Neglible
15	362029.6	397177.1	12.01	14.06	19.71	26.45	1.20	15.25	16.45	18.20	21.29	18.31	28.64	1.11	14.91	16.02	19.25	22.52	18.31	29.19	1.21	14.91	16.12	1.38	Small	Neglible	0.25	Imperceptible	Neglible
16	362009.1	397153.5	10.00	11.70	19.71	25.36	0.94	15.25	16.19	13.73	16.06	18.31	26.21	0.88	14.91	15.79	14.77	17.28	18.31	26.78	0.98	14.91	15.89	1.43	Small	Neglible	0.26	Imperceptible	Neglible
17	361978.8	397177.2	7.62	8.91	20.18	24.51	0.68	15.61	16.29	9.48	11.09	18.77	24.29	0.64	15.26	15.90	10.37	12.13	18.77	24.79	0.73	15.26	15.99	1.25	Small	Neglible	0.23	Imperceptible	Neglible
18	362014.5	397202	11.21	13.11	19.71	26.02	1.12	15.25	16.37	16.87	19.74	18.31	27.92	1.04	14.91	15.95	17.77	20.79	18.31	28.41	1.12	14.91	16.03	1.23	Small	Neglible	0.22	Imperceptible	Neglible
19	361961.9	397214.9	8.15	9.54	20.18	24.80	0.69	15.61	16.30	8.96	10.48	18.77	23.99	0.65	15.26	15.91	9.44	11.05	18.77	24.26	0.71	15.26	15.97	0.68	Imperceptible	Neglible	0.13	Imperceptible	Neglible
20	361996.7	397261.3	7.38	8.64	20.18	24.38	0.62	15.61	16.23	7.95	9.31	18.77	23.42	0.59	15.26	15.85	8.33	9.74	18.77	23.63	0.63	15.26	15.89	0.52	Imperceptible	Neglible	0.10	Imperceptible	Neglible
21	361930.2	397263.7	9.29	10.87	20.18	25.43	0.75	15.61	16.36	8.76	10.25	18.77	23.88	0.72	15.26	15.98	9.17	10.72	18.77	24.11	0.77	15.26	16.03	0.58	Imperceptible	Neglible	0.12	Imperceptible	Neglible
22	361904.9	397330.5	10.78	12.61	20.18	26.24	0.87	15.61	16.48	9.88	11.56	18.77	24.51	0.84	15.26	16.10	10.34	12.10	18.77	24.77	0.89	15.26	16.15	0.65	Imperceptible	Neglible	0.14	Imperceptible	Neglible
23	361844.4	397356.2	7.28	8.52	20.18	24.32	0.59	15.61	16.20	6.66	7.80	18.77	22.68	0.57	15.26	15.83	6.95	8.14	18.77	22.85	0.60	15.26	15.86	0.43	Imperceptible	Neglible	0.09	Imperceptible	Neglible
24	361800.9	397456.5	9.97	11.66	20.18	25.80	0.81	15.61	16.42	9.02	10.55	18.77	24.02	0.78	15.26	16.04	9.44	11.05	18.77	24.27	0.83	15.26	16.09	0.63	Imperceptible	Neglible	0.13	Imperceptible	Neglible
25	361757.9	397464.9	6.99	8.18	20.18	24.16	0.56	15.61	16.17	6.35	7.43	18.77	22.5	0.54	15.26	15.80	6.64	7.76	18.77	22.67	0.58	15.26	15.84	0.43	Imperceptible	Neglible	0.08	Imperceptible	Neglible
26	361737.7	397547.1	8.81	10.30	20.18	25.16	0.71	15.61	16.32	7.97	9.33	18.77	23.43	0.69	15.26	15.95	8.35	9.78	18.77	23.65	0.73	15.26	15.99	0.55	Imperceptible	Neglible	0.11	Imperceptible	Neglible
27	361698.5	397541.2	6.79	7.94	20.18	24.05	0.54	15.61	16.15	6.17	7.22	18.77	22.4	0.53	15.26	15.79	6.45	7.55	18.77	22.56	0.56	15.26	15.82	0.40	Imperceptible	Neglible	0.08	Imperceptible	Neglible
28	361654.8	397643.5	9.13	10.68	20.18	25.34	0.73	15.61	16.34	8.29	9.70	18.77	23.61	0.70	15.26	15.96	8.70	10.18	18.77	23.84	0.75	15.26	16.01	0.58	Imperceptible	Neglible	0.12	Imperceptible	Neglible
29	361615.8	397644.2	8.85	10.35	20.18	25.18	0.70	15.61	16.31	8.06	9.43	18.77	23.48	0.67	15.26	15.93	8.45	9.89	18.77	23.7	0.72	15.26	15.98	0.55	Imperceptible	Neglible	0.11	Imperceptible	Neglible
30	361599.1	397696.4	11.74	13.74	20.18	26.76	0.89	15.61	16.50	10.76	12.59	18.77	25.01	0.86	15.26	16.12	11.29	13.21	18.77	25.3	0.92	15.26	16.18	0.72	Imperceptible	Neglible	0.15	Imperceptible	Neglible
31	361578.2	397676.1	8.41	9.84	20.18	24.94	0.62	15.61	16.23	7.77	9.09	18.77	23.32	0.61	15.26	15.87	8.14	9.53	18.77	23.53	0.65	15.26	15.91	0.53	Imperceptible	Neglible	0.10	Imperceptible	Neglible
100	361931.7	397116.7	6.12	7.16	20.18	23.67	0.49	15.61	16.10	5.99	7.01	18.77	22.29	0.47	15.26	15.73	6.33	7.41	18.77	22.49	0.51	15.26	15.77	0.50	Imperceptible	Neglible	0.09	Imperceptible	Neglible
Church Lane / Stone Cross Lane North junction (J1)																												
32	361524	397779.2	22.68	26.53	20.18	32.41	1.60	15.61	17.21	22.03	25.77	18.77	31.09	1.60	15.26	16.86	23.15	27.08	18.77	31.67	1.71	15.26	16.97	1.45	Small	Neglible	0.27	Imperceptible	Neglible
33	361492.1	397777.3	24.02	28.10	20.18	33.08	1.61	15.61	17.22	22.62	26.47	18.77	31.4	1.56	15.26	16.82	23.57	27.57	18.77	31.88	1.65	15.26	16.91	1.20	Small	Neglible	0.23	Imperceptible	Neglible
34	361495.1	397749.3	27.67	32.37	20.18	34.85	1.64	15.61	17.25	26.68	31.22	18.77	33.47	1.61	15.26	16.87	27.87	32.61	18.77	34.07	1.72	15.26	16.98	1.50	Small	Neglible	0.28	Imperceptible	Neglible
35	361500.9	397720.3	24.60	28.78	20.18	33.36	1.38	15.61	16.99	23.98	28.06	18.77	32.1	1.38	15.26	16.64	25.13	29.40	18.77	32.68	1.48	15.26	16.74	1.45	Small	Neglible	0.26	Imperceptible	Neglible
36	361487.5	397734.3	26.36	30.84	20.18	34.22	1.48	15.61	17.09	25.63	29.99	18.77	32.94	1.47	15.26	16.73	26.80	31.36	18.77	33.53	1.58	15.26	16.84	1.48	Small	Neglible	0.27	Imperceptible	Neglible
37	361449.3	397784.8	13.36	15.63	20.18	27.62	0.92	15.61	16.53	12.51	14.63	18.77	25.98	0.89	15.26	16.15	13.02	15.23	18.77	26.26	0.94	15.26	16.20	0.70	Imperceptible	Neglible	0.13	Imperceptible	Neglible
Stone Cross Lane North																												
38	361478.6	397677.3	10.35	12.11	20.18	26.00	0.73	15.61	16.34	9.88	11.56	18.77	24.51	0.75	15.26	16.01	10.41	12.17	18.77	24.81	0.81	15.26	16.07	0.75	Imperceptible	Neglible	0.14	Imperceptible	Neglible
39	361451.3	397681.2	13.49	15.79	20.18	27.69	0.96	15.61	16.57	12.85	15.03	18.77	26.17	1.00	15.26	16.26	13.52	15.82	18.77	26.54	1.08	15.26	16.34	0.92	Imperceptible	Neglible	0.19	Imperceptible	Neglible
40	361452.5	397637.5	8.89	10.40	20.18	25.21	0.65	15.61	16.26	8.46	9.90	18.77	23.71	0.68	15.26	15.94	8.91	10.43	18.77	23.96	0.73	15.26	15.99	0.63	Imperceptible	Neglible	0.13	Imperceptible	Neglible
41	361381	397582.9	11.12	13.01	20.18	26.42	0.82	15.61	16.43	10.55	12.35	18.77	24.89	0.87	15.26	16.13	11.11	13.00	18.77	25.2	0.93	15.26	16.19	0.77	Imperceptible	Neglible	0.17	Imperceptible	Neglible
42	361355.2	397501.4	8.96	10.48	20.18	25.24	0.67	15.61	16.28	8.52	9.97	18.77	23.74	0.70	15.26	15.96	8.98	10.51	18.77	24	0.76	15.26	16.02	0.65	Imperceptible	Neglible	0.14	Imperceptible	Neglible
43	361266.9	397409	13.10	15.33	20.18	27.48	0.97	15.61	16.58	12.42	14.54	18.77	25.93	1.02	15.26	16.28	13.08	15.30	18.77	26.29	1.10	15.26	16.36	0.90	Imperceptible	Neglible	0.20	Imperceptible	Neglible
44	361291.5	397410.6	10.17	11.90	20.18	25.91	0.75	15.61	16.36	9.68	11.32	18.77	24.4	0.79	15.26	16.05	10.20	11.94	18.77	24.69	0.85	15.26	16.11	0.73	Imperceptible	Neglible	0.16	Imperceptible	Neglible
45	361247.4	397315.2	11.05	12.93	20.18	26.38	0.79	15.61	16.40	10.52	12.31	18.77	24.87	0.82	15.26	16.08	11.11	12.99	18.77	25.2	0.89	15.26	16.15	0.82	Imperceptible	Neglible	0.17	Imperceptible	Neglible
46	361277.3	397313	10.65	12.46	20.18	26.17	0.76	15.61	16.37	10.17	11.90	18.77	24.67	0.79	15.26	16.05	10.76	12.59	18.77	25	0.86	15.26	16.12	0.82	Imperceptible	Neglible	0.17	Imperceptible	Neglible
47	361244.9	397269.1	14.43	16.88	20.18	28.19	0.93	15.61	16.54	13.88	16.24	18.77	26.74	0.96	15.26	16.22	14.70	17.20	18.77	27.18	1.05	15.26	16.31	1.10	Small	Neglible	0.22	Imperceptible	Neglible
48	361241.7	397252	16.29	19.06	20.18	29.16	0.97	15.61	16.58	15.84	18.53	18.77	27.8	0.99	15.26	16.25	16.82	19.68	18.77	28.33	1.09	15.26	16.35	1.32	Small	Neglible	0.24	Imperceptible	Neglible
49	361239.4	397222.4	18.31	21.42	20.18	30.20	1.06	15.61	16.67	17.88	20.92	18.77	28.9	1.08	15.26	16.34	19.14	22.39	18.77	29.57	1.20	15.26	16.46	1.68	Small	Neglible	0.31	Imperceptible	Neglible
50	361213.6	397125.8	11.48	13.43	20.18	26.62	0.82	15.61	16.43	10.92	12.78	18.77	25.1	0.84	15.26	16.10	11.53	13.49	18.77	25.43	0.91	15.26	16.17	0.82	Imperceptible	Neglible	0.17	Imperceptible	Neglible
51	361169.4	397115.5	14.73	17.24	20.18	28.35	1.04	15.61	16.65	14.04	16.43	18.77	26.82	1.07	15.26	16.33	14.84	17.37	18.77	27.26	1.16	15.26	16.42	1.10	Small	Neglible	0.22	Imperceptible	Neglible
52	361050.2	396995.9	24.48	28.64	20.62	33.71	1.72	16.63	18.35	23.04	26.95	19.06	31.88	1.72	16.28	18.00	23.69	27.71	19.06	32.21	1.79	16.28	18.07	0.83	Imperceptible	Neglible	0.17	Imperceptible	Neglible
53	361053.4	397023.9	19.80	23.17	20.18	30.97	1.36	15.61	16.97	18.77	21.96	18.77	29.37	1.37	15.26	16.63	19.47	22.78	18.77	29.75	1.45	15.26	16.71	0.95	Imperceptible	Neglible	0.18	Imperceptible	Neglible
East Lancs Road (A580)																												
54	361430.2	396952.6	16.98	19.87	20.62	29.94	1.50	16.63	18.13	15.10	17.67	19.06	27.68	1.46	16.28	17.74	15.34	17.95	19.06	27.81	1.49	16.28	17.77	0.32	Imperceptible	Neglible	0.07	Imperceptible	Neglible
55	361570.2	396893.5	15.04	17.60	20.62	28.93	1.32	16.63	17.95	13.35	15.62	19.06	26.72	1.28	16.28	17.56	13.54	15.85	19.06	26.83	1.31	16.28	17.59	0.27	Imperceptible	Neglible	0.06	Imperceptible	Neglible
56	361861.2	396876.6	11.06	12.94	20.62	26.81	0.92	16.63	17.55	9.95	11.64	19.06	24.83	0.89	16.28	17.17	10.10	11.82	19.06	24.92	0.91	16.28	17.19	0.23	Imperceptible	Neglible	0.05	Imperceptible	Neglible
57	361951	396881	13.42	15.70	20.62	28.07	1.05	16.63	17.68	12.17	14.24	19.06	26.07	1.01	16.28	17.29	12.35	14.45	19.06	26.17	1.03	16.28	17.31	0.25	Imperceptible	Neglible	0.05	Imperceptible	Neglible
58	362018.8	396877.8	15.01	17.56	21.12	29.39	1.07	15.84	16.91	13.80	16.15	19.49	27.38	1.03	15.48	16.51	14.00	16.39	19.49	27.49	1.05	15.48	16.53	0.27	Imperceptible	Neglible	0.05	Imperceptible	Neglible
59	361987.6	396941	31.71	37.11	20.62	37.16	2.29	16.63	18.92	29.07	34.01	19.06	34.93	2.18	16.28	18.46	29.45	34.45	19.06	35.12	2.22	16.28	18.50	0.47	Imperceptible	Neglible	0.10	Imperceptible	Neglible
60	362018	396938.2	45.06	52.72	21.12	43.53	2.89	15.84	18.73	41.94	49.06	19.49	41.43	2.71	15.48	18.19	42.43	49.64	19.49	41.65	2.76	15.48	18.24	0.55	Imperceptible	Neglible	0.12	Imperceptible	Neglible
61	362078.3	396887.6	21.08	24.66	21.12	32.49	1.43	15.84	17.27	19.51	22.83	19.49	30.44	1.36	15.48	16.84	19.79	23.15	19.49	30.59	1.39	15.48	16.87	0.37	Imperceptible	Neglible	0.07	Imperceptible	Neglible

			Scenario A 2011 Baseline							Scenario B 2013 Without Development							Scenario C 2013 With Development											
Receptor Name	X	Y	Modelled NOx	Adjusted NOx (x1.17)	Background NO2	**Total NO2 (adjusted)**	Modelled PM10	Backgroun d PM10	**Total PM10**	Modelled NOx	Adjusted NOx (x1.17)	Backgroun d NO2	**Total NO2**	Modelled PM10	Background PM10	**Total PM10**	Modelled NOx	Adjusted NOx (x1.17)	Backgroun d NO2	**Total NO2**	Modelled PM10	Background PM10	**Total PM10**	% change NO2	magnitude of change	descriptor	% change PM10	magnitude of change	descriptor
Kenyon Lane / Newton Lane junction (J6)																													
65	362217.4	396852.3	19.50	22.82	21.12	31.70	1.30	15.84	17.14	18.13	21.21	19.49	29.71	1.24	15.48	16.72	18.50	21.65	19.49	29.91	1.27	15.48	16.75	0.50	Imperceptible	Neglible	0.10	Imperceptible	Neglible
66	362249.9	396801.2	21.55	25.22	21.12	32.73	1.36	15.84	17.20	20.14	23.56	19.49	30.78	1.28	15.48	16.76	20.50	23.99	19.49	30.97	1.32	15.48	16.80	0.47	Imperceptible	Neglible	0.09	Imperceptible	Neglible
67	362280.7	396794.1	42.40	49.61	21.12	42.39	2.60	15.84	18.44	39.65	46.38	19.49	40.38	2.45	15.48	17.93	40.30	47.15	19.49	40.68	2.51	15.48	17.99	0.75	Imperceptible	Neglible	0.15	Imperceptible	Neglible
68	362269.2	396755.5	57.39	67.14	21.12	48.55	3.17	15.84	19.01	54.10	63.30	19.49	46.77	2.99	15.48	18.47	54.51	63.78	19.49	46.94	3.02	15.48	18.50	0.42	Imperceptible	Neglible	0.10	Imperceptible	Neglible
69	362277.6	396736.1	36.26	42.42	21.12	39.69	2.13	15.84	17.97	34.02	39.80	19.49	37.73	2.00	15.48	17.48	34.32	40.16	19.49	37.88	2.03	15.48	17.51	0.38	Imperceptible	Neglible	0.07	Imperceptible	Neglible
70	362250.7	396680.2	10.33	12.09	21.12	26.90	0.73	15.84	16.57	9.49	11.11	19.49	24.99	0.71	15.48	16.19	9.59	11.22	19.49	25.05	0.72	15.48	16.20	0.15	Imperceptible	Neglible	0.03	Imperceptible	Neglible
71	362265.7	396704.9	14.78	17.30	21.12	29.27	1.02	15.84	16.86	13.64	15.95	19.49	27.29	0.98	15.48	16.46	13.77	16.11	19.49	27.36	1.00	15.48	16.48	0.18	Imperceptible	Neglible	0.03	Imperceptible	Neglible
72	362296.4	396728.4	20.83	24.37	21.12	32.36	1.34	15.84	17.18	19.48	22.79	19.49	30.43	1.27	15.48	16.75	19.78	23.15	19.49	30.59	1.30	15.48	16.78	0.40	Imperceptible	Neglible	0.07	Imperceptible	Neglible
73	362319.7	396695.3	8.93	10.45	21.12	26.14	0.63	15.84	16.47	8.29	9.70	19.49	24.31	0.61	15.48	16.09	8.42	9.86	19.49	24.39	0.62	15.48	16.10	0.20	Imperceptible	Neglible	0.04	Imperceptible	Neglible
74	362326	396718.9	20.63	24.14	21.12	32.27	1.64	15.84	17.48	18.97	22.19	19.49	30.16	1.57	15.48	17.05	19.41	22.71	19.49	30.39	1.62	15.48	17.10	0.58	Imperceptible	Neglible	0.13	Imperceptible	Neglible
75	362302.2	396739.8	33.98	39.76	21.12	38.66	2.19	15.84	18.03	31.90	37.32	19.49	36.71	2.04	15.48	17.52	32.53	38.06	19.49	37.02	2.10	15.48	17.58	0.78	Imperceptible	Neglible	0.14	Imperceptible	Neglible
76	362290.3	396758.7	45.51	53.25	21.12	43.72	2.62	15.84	18.46	43.12	50.45	19.49	41.97	2.50	15.48	17.98	43.63	51.04	19.49	42.2	2.54	15.48	18.02	0.58	Imperceptible	Neglible	0.12	Imperceptible	Neglible
77	362296.4	396769.5	39.04	45.68	21.12	40.93	2.30	15.84	18.14	36.94	43.22	19.49	39.12	2.20	15.48	17.68	37.36	43.71	19.49	39.31	2.24	15.48	17.72	0.48	Imperceptible	Neglible	0.10	Imperceptible	Neglible
78	362299.8	396820.7	34.21	40.03	21.12	38.76	2.19	15.84	18.03	31.98	37.42	19.49	36.75	2.10	15.48	17.58	32.25	37.74	19.49	36.88	2.13	15.48	17.61	0.33	Imperceptible	Neglible	0.07	Imperceptible	Neglible
79	362314	396847.1	36.12	42.26	21.12	39.63	2.19	15.84	18.03	33.94	39.71	19.49	37.69	2.09	15.48	17.57	34.18	39.98	19.49	37.81	2.12	15.48	17.60	0.30	Imperceptible	Neglible	0.06	Imperceptible	Neglible
East Lanes Road / Nerwton Road junction (J5)																													
80	362378.1	396863.8	26.63	31.16	21.12	35.21	1.63	15.84	17.47	25.02	29.27	19.49	33.29	1.57	15.48	17.05	25.21	29.50	19.49	33.39	1.59	15.48	17.07	0.25	Imperceptible	Neglible	0.05	Imperceptible	Neglible
81	362393.2	396876.3	27.76	32.48	21.12	35.75	1.71	15.84	17.55	26.04	30.47	19.49	33.81	1.65	15.48	17.13	26.26	30.72	19.49	33.92	1.67	15.48	17.15	0.27	Imperceptible	Neglible	0.05	Imperceptible	Neglible
82	362424.4	396890.9	31.13	36.42	21.12	37.34	1.91	15.84	17.75	29.13	34.09	19.49	35.36	1.83	15.48	17.31	29.40	34.40	19.49	35.49	1.86	15.48	17.34	0.33	Imperceptible	Neglible	0.07	Imperceptible	Neglible
83	362465.7	396892.6	28.93	33.85	21.12	36.31	1.78	15.84	17.62	27.00	31.60	19.49	34.3	1.71	15.48	17.19	27.26	31.90	19.49	34.43	1.73	15.48	17.21	0.33	Imperceptible	Neglible	0.07	Imperceptible	Neglible
84	362447.3	396892.6	30.35	35.51	21.12	36.98	1.86	15.84	17.70	28.37	33.19	19.49	34.98	1.78	15.48	17.26	28.64	33.50	19.49	35.11	1.81	15.48	17.29	0.33	Imperceptible	Neglible	0.07	Imperceptible	Neglible
85	362499	396893.1	27.08	31.69	21.12	35.43	1.69	15.84	17.53	25.20	29.49	19.49	33.39	1.62	15.48	17.10	25.45	29.78	19.49	33.51	1.65	15.48	17.13	0.30	Imperceptible	Neglible	0.06	Imperceptible	Neglible
86	362538.2	396893.2	22.92	26.82	21.12	33.40	1.53	15.84	17.37	21.13	24.72	19.49	31.29	1.48	15.48	16.96	21.34	24.97	19.49	31.4	1.50	15.48	16.98	0.27	Imperceptible	Neglible	0.06	Imperceptible	Neglible
87	362586.1	396942.6	31.23	36.54	21.12	37.39	2.34	15.84	18.18	28.29	33.10	19.49	34.94	2.27	15.48	17.75	28.59	33.45	19.49	35.09	2.30	15.48	17.78	0.38	Imperceptible	Neglible	0.09	Imperceptible	Neglible
88	362523.6	396943.4	35.53	41.57	21.12	39.36	2.46	15.84	18.30	32.62	38.16	19.49	37.06	2.37	15.48	17.85	32.95	38.55	19.49	37.22	2.41	15.48	17.89	0.40	Imperceptible	Neglible	0.09	Imperceptible	Neglible
89	362487.1	396943.5	38.82	45.42	21.12	40.83	2.60	15.84	18.44	35.85	41.94	19.49	38.6	2.50	15.48	17.98	36.20	42.36	19.49	38.77	2.54	15.48	18.02	0.43	Imperceptible	Neglible	0.09	Imperceptible	Neglible
90	362459.6	396976.3	30.25	35.39	21.12	36.93	1.94	15.84	17.78	28.39	33.21	19.49	34.99	1.89	15.48	17.37	28.65	33.51	19.49	35.11	1.91	15.48	17.39	0.30	Imperceptible	Neglible	0.07	Imperceptible	Neglible
96	362411.2	396967.1	41.27	48.29	21.12	41.90	2.62	15.84	18.46	38.89	45.50	19.49	40.03	2.55	15.48	18.03	39.22	45.89	19.49	40.18	2.58	15.48	18.06	0.37	Imperceptible	Neglible	0.08	Imperceptible	Neglible
DT159	362640	396905	24.98	29.23	21.12	34.41	1.87	15.84	17.71	22.57	26.41	19.49	32.04	1.82	15.48	17.30	22.80	26.68	19.49	32.16	1.84	15.48	17.32	0.30	Imperceptible	Neglible	0.07	Imperceptible	Neglible
Newton Road																													
91	362505.8	397037.4	17.84	20.88	19.71	29.52	1.23	15.25	16.48	16.70	19.54	18.31	27.83	1.21	14.91	16.12	16.86	19.72	18.31	27.92	1.23	14.91	16.14	0.23	Imperceptible	Neglible	0.04	Imperceptible	Neglible
92	362544.6	397105.3	17.27	20.21	19.71	29.23	1.23	15.25	16.48	16.21	18.97	18.31	27.57	1.23	14.91	16.14	16.35	19.12	18.31	27.64	1.24	14.91	16.15	0.18	Imperceptible	Neglible	0.04	Imperceptible	Neglible
93	362520	397117.7	19.48	22.79	19.71	30.36	1.39	15.25	16.64	18.27	21.38	18.31	28.67	1.38	14.91	16.29	18.41	21.54	18.31	28.75	1.40	14.91	16.31	0.20	Imperceptible	Neglible	0.04	Imperceptible	Neglible
94	362475.2	397058	21.15	24.74	19.71	31.21	1.47	15.25	16.72	19.84	23.21	18.31	29.51	1.45	14.91	16.36	20.01	23.41	18.31	29.6	1.47	14.91	16.38	0.23	Imperceptible	Neglible	0.04	Imperceptible	Neglible
95	362437.2	397004.2	30.57	35.77	19.71	35.81	1.97	15.25	17.22	28.85	33.75	18.31	34.13	1.92	14.91	16.83	29.09	34.03	18.31	34.25	1.94	14.91	16.85	0.30	Imperceptible	Neglible	0.06	Imperceptible	Neglible
97	362344.2	396974.7	25.13	29.40	21.12	34.49	1.58	15.84	17.42	23.63	27.65	19.49	32.58	1.52	15.48	17.00	23.91	27.98	19.49	32.73	1.55	15.48	17.03	0.37	Imperceptible	Neglible	0.07	Imperceptible	Neglible
98	362294.4	396961.8	28.19	32.99	21.12	35.96	1.78	15.84	17.62	26.48	30.98	19.49	34.03	1.71	15.48	17.19	26.84	31.41	19.49	34.21	1.74	15.48	17.22	0.45	Imperceptible	Neglible	0.09	Imperceptible	Neglible
DT158	362747	397290	15.77	18.45	19.71	28.45	1.15	15.25	16.40	14.85	17.37	18.31	26.82	1.15	14.91	16.06	14.94	17.49	18.31	26.88	1.16	14.91	16.07	0.15	Imperceptible	Neglible	0.03	Imperceptible	Neglible
Development Site																													
101	361699.5	397122.9															4.42	5.17	18.77	21.38	0.39	15.26	15.65						
102	361377.6	397122.7															5.04	5.90	18.77	21.75	0.43	15.26	15.69						
103	361386.1	397293.1															3.99	4.67	18.77	21.13	0.33	15.26	15.59						
104	361702.4	397304.8															3.23	3.78	18.77	20.69	0.27	15.26	15.53						
105	361527.4	397503.7															3.10	3.63	18.77	20.61	0.26	15.26	15.52						
106	361812.5	396995.5															9.16	10.72	19.06	24.39	0.84	16.28	17.12						
107	361644.4	396998.3															8.46	9.89	19.06	23.99	0.80	16.28	17.08						
108	361537.8	397203.8															3.57	4.18	19.06	21.18	0.31	16.28	16.59						

Notes:

1. Background NO2 and PM10 is predicted DEFRA data for receptor grid square and modelled year
2. total NO2 is calculated from the DEFRA NOx to NO2 convertor (August 2012 version)
3. % change is as % of the assessment level

Total NO2 / PM10 Concentrations
Well below objective (<30 ug/m3)
Below objective (30-36 ug/m3)
Just below objective (36-40 ug/m3)
Above objective (>40 ug/m3)

Magnitude of Change
imperceptible
small
medium
large

% Change (as % of assessment level)
<1% increase in NO2 / PM10 concentration
1-5% increase in NO2 / PM10 concentration
5-10% increase in NO2 / PM10 concentration
>10% increase in NO2 / PM10 concentration

Impact Descriptor
negligible
slight adverse
moderate adverse
substantial adverse

			Scenario D 2018 Without Development							Scenario E 2018 With Development												
Receptor Name	X	Y	Modelled NOx	Adjusted NOx (x1.17)	Backgroun d NO2	**Total NO2**	Modelled PM10	Backgroun d PM10	**Total PM10**	Modelled Nox	Adjusted NOx (x1.17)	Backgroun d NO2	**Total NO2**	Modelled PM10	Backgroun d PM10	**Total PM10**	% change NO2	magnitude of change	descriptor	% change PM10	magnitude of change	descriptor
Church Lane / A580 junction (J4)																						
1	362133	396948.4	26.61	31.14	15.51	30.54	2.15	14.78	16.93	27.32	31.97	15.51	30.9	2.22	14.78	17.00	0.90	Imperceptible	Neglible	0.18	Imperceptible	Neglible
2	362127.7	396956.1	22.84	26.72	15.51	28.56	1.84	14.78	16.62	23.50	27.50	15.51	28.91	1.91	14.78	16.69	0.88	Imperceptible	Neglible	0.17	Imperceptible	Neglible
3	362121.9	396964.3	20.04	23.45	15.51	27.06	1.63	14.78	16.41	20.66	24.18	15.51	27.39	1.69	14.78	16.47	0.83	Imperceptible	Neglible	0.16	Imperceptible	Neglible
4	362155.1	396960	23.65	27.67	15.51	28.99	1.93	14.78	16.71	24.44	28.60	15.51	29.4	2.01	14.78	16.79	1.03	Small	Neglible	0.20	Imperceptible	Neglible
5	362148.9	396969.8	21.08	24.66	15.51	27.62	1.70	14.78	16.48	21.83	25.54	15.51	28.02	1.78	14.78	16.56	1.00	Imperceptible	Neglible	0.19	Imperceptible	Neglible
62	362118.8	396890.5	13.10	15.33	15.51	23.22	1.23	14.78	16.01	13.35	15.61	15.51	23.36	1.26	14.78	16.04	0.35	Imperceptible	Neglible	0.07	Imperceptible	Neglible
63	362122.2	396939.7	30.02	35.12	15.51	32.28	2.39	14.78	17.17	30.58	35.78	15.51	32.57	2.45	14.78	17.23	0.72	Imperceptible	Neglible	0.15	Imperceptible	Neglible
64	362199.4	396879.5	15.54	18.18	15.51	24.59	1.39	14.78	16.17	15.95	18.66	15.51	24.81	1.44	14.78	16.22	0.55	Imperceptible	Neglible	0.12	Imperceptible	Neglible
99	362211.5	396944.3	21.79	25.49	15.51	28	1.99	14.78	16.77	22.25	26.03	15.51	28.24	2.04	14.78	16.82	0.60	Imperceptible	Neglible	0.13	Imperceptible	Neglible
DT52	362137	396947	29.01	33.94	15.51	31.77	2.33	14.78	17.11	29.82	34.90	15.51	32.18	2.41	14.78	17.19	1.03	Small	Neglible	0.21	Imperceptible	Neglible
Church Lane																						
6	362105.1	396987.7	14.30	16.73	15.51	23.89	1.23	14.78	16.01	14.78	17.30	15.51	24.17	1.29	14.78	16.07	0.70	Imperceptible	Neglible	0.13	Imperceptible	Neglible
7	362128.7	396998.9	16.14	18.88	15.51	24.92	1.35	14.78	16.13	16.80	19.65	15.51	25.29	1.43	14.78	16.21	0.92	Imperceptible	Neglible	0.18	Imperceptible	Neglible
8	362105.6	397038.3	10.26	12.01	15.01	21.12	1.06	14.22	15.28	10.71	12.54	15.01	21.38	1.12	14.22	15.34	0.65	Imperceptible	Neglible	0.15	Imperceptible	Neglible
9	362069.5	397027.3	7.98	9.33	15.01	19.79	0.80	14.22	15.02	8.25	9.65	15.01	19.95	0.83	14.22	15.05	0.40	Imperceptible	Neglible	0.09	Imperceptible	Neglible
10	362084.8	397076.7	8.55	10.00	15.01	20.12	0.94	14.22	15.16	8.97	10.50	15.01	20.37	0.99	14.22	15.21	0.63	Imperceptible	Neglible	0.15	Imperceptible	Neglible
11	362042.2	397084.1	6.24	7.30	15.01	18.77	0.66	14.22	14.88	6.52	7.63	15.01	18.93	0.70	14.22	14.92	0.40	Imperceptible	Neglible	0.09	Imperceptible	Neglible
12	362065.1	397113	8.04	9.41	15.01	19.83	0.87	14.22	15.09	8.48	9.93	15.01	20.09	0.93	14.22	15.15	0.65	Imperceptible	Neglible	0.15	Imperceptible	Neglible
13	362021.2	397132.2	7.77	9.09	15.01	19.67	0.70	14.22	14.92	8.26	9.66	15.01	19.95	0.75	14.22	14.97	0.70	Imperceptible	Neglible	0.14	Imperceptible	Neglible
14	362037.5	397151.2	14.13	16.53	15.01	23.32	1.10	14.22	15.32	15.03	17.58	15.01	23.82	1.19	14.22	15.41	1.25	Small	Neglible	0.23	Imperceptible	Neglible
15	362029.6	397177.1	10.95	12.81	15.01	21.51	0.86	14.22	15.08	11.71	13.71	15.01	21.95	0.94	14.22	15.16	1.10	Small	Neglible	0.21	Imperceptible	Neglible
16	362009.1	397153.5	8.21	9.60	15.01	19.92	0.69	14.22	14.91	8.96	10.48	15.01	20.36	0.78	14.22	15.00	1.10	Small	Neglible	0.22	Imperceptible	Neglible
17	361978.8	397177.2	5.63	6.59	15.47	18.86	0.51	14.58	15.09	6.27	7.33	15.47	19.24	0.59	14.58	15.17	0.95	Imperceptible	Neglible	0.20	Imperceptible	Neglible
18	362014.5	397202	10.15	11.87	15.01	21.05	0.81	14.22	15.03	10.80	12.64	15.01	21.43	0.88	14.22	15.10	0.95	Imperceptible	Neglible	0.18	Imperceptible	Neglible
19	361961.9	397214.9	5.30	6.20	15.47	18.66	0.54	14.58	15.12	5.65	6.61	15.47	18.87	0.58	14.58	15.16	0.53	Imperceptible	Neglible	0.11	Imperceptible	Neglible
20	361996.7	397261.3	4.70	5.50	15.47	18.31	0.48	14.58	15.06	4.97	5.81	15.47	18.47	0.52	14.58	15.10	0.40	Imperceptible	Neglible	0.08	Imperceptible	Neglible
21	361930.2	397263.7	5.12	5.99	15.47	18.56	0.61	14.58	15.19	5.41	6.33	15.47	18.73	0.65	14.58	15.23	0.43	Imperceptible	Neglible	0.10	Imperceptible	Neglible
22	361904.9	397330.5	5.76	6.74	15.47	18.94	0.72	14.58	15.30	6.10	7.13	15.47	19.13	0.77	14.58	15.35	0.47	Imperceptible	Neglible	0.12	Imperceptible	Neglible
23	361844.4	397356.2	3.88	4.54	15.47	17.82	0.48	14.58	15.06	4.09	4.79	15.47	17.94	0.51	14.58	15.09	0.30	Imperceptible	Neglible	0.08	Imperceptible	Neglible
24	361800.9	397456.5	5.25	6.15	15.47	18.64	0.67	14.58	15.25	5.56	6.51	15.47	18.82	0.72	14.58	15.30	0.45	Imperceptible	Neglible	0.11	Imperceptible	Neglible
25	361757.9	397464.9	3.70	4.33	15.47	17.71	0.47	14.58	15.05	3.90	4.57	15.47	17.83	0.50	14.58	15.08	0.30	Imperceptible	Neglible	0.07	Imperceptible	Neglible
26	361737.7	397547.1	4.65	5.44	15.47	18.28	0.59	14.58	15.17	4.92	5.76	15.47	18.44	0.63	14.58	15.21	0.40	Imperceptible	Neglible	0.10	Imperceptible	Neglible
27	361698.5	397541.2	3.60	4.21	15.47	17.65	0.45	14.58	15.03	3.80	4.45	15.47	17.77	0.48	14.58	15.06	0.30	Imperceptible	Neglible	0.07	Imperceptible	Neglible
28	361654.8	397643.5	4.85	5.67	15.47	18.4	0.60	14.58	15.18	5.14	6.02	15.47	18.57	0.64	14.58	15.22	0.43	Imperceptible	Neglible	0.10	Imperceptible	Neglible
29	361615.8	397644.2	4.72	5.52	15.47	18.32	0.58	14.58	15.16	5.00	5.85	15.47	18.49	0.62	14.58	15.20	0.42	Imperceptible	Neglible	0.10	Imperceptible	Neglible
30	361599.1	397696.4	6.35	7.43	15.47	19.29	0.73	14.58	15.31	6.73	7.88	15.47	19.51	0.78	14.58	15.36	0.55	Imperceptible	Neglible	0.13	Imperceptible	Neglible
31	361578.2	397676.1	4.59	5.37	15.47	18.24	0.51	14.58	15.09	4.85	5.68	15.47	18.4	0.55	14.58	15.13	0.40	Imperceptible	Neglible	0.09	Imperceptible	Neglible
100	361931.7	397116.7	3.50	4.10	15.47	17.59	0.39	14.58	14.97	3.75	4.39	15.47	17.74	0.42	14.58	15.00	0.37	Imperceptible	Neglible	0.08	Imperceptible	Neglible
Church Lane / Stone Cross Lane North																						
32	361524	397779.2	13.95	16.32	15.47	23.66	1.33	14.58	15.91	14.77	17.28	15.47	24.12	1.42	14.58	16.00	1.15	Small	Neglible	0.23	Imperceptible	Neglible
33	361492.1	397777.3	13.78	16.13	15.47	23.57	1.29	14.58	15.87	14.48	16.94	15.47	23.96	1.37	14.58	15.95	0.98	Imperceptible	Neglible	0.20	Imperceptible	Neglible
34	361495.1	397749.3	16.07	18.80	15.47	24.84	1.28	14.58	15.86	16.95	19.83	15.47	25.33	1.37	14.58	15.95	1.23	Small	Neglible	0.23	Imperceptible	Neglible
35	361500.9	397720.3	14.27	16.69	15.47	23.84	1.07	14.58	15.65	15.10	17.67	15.47	24.31	1.15	14.58	15.73	1.18	Small	Neglible	0.22	Imperceptible	Neglible
36	361487.5	397734.3	15.27	17.87	15.47	24.4	1.14	14.58	15.72	16.13	18.88	15.47	24.88	1.23	14.58	15.81	1.20	Small	Neglible	0.22	Imperceptible	Neglible
37	361449.3	397784.8	7.56	8.85	15.47	20	0.75	14.58	15.33	7.94	9.29	15.47	20.22	0.79	14.58	15.37	0.55	Imperceptible	Neglible	0.11	Imperceptible	Neglible
Stone Cross Lane North																						
38	361478.6	397677.3	5.70	6.67	15.47	18.9	0.63	14.58	15.21	6.08	7.11	15.47	19.12	0.68	14.58	15.26	0.55	Imperceptible	Neglible	0.13	Imperceptible	Neglible
39	361451.3	397681.2	7.34	8.59	15.47	19.87	0.85	14.58	15.43	7.83	9.16	15.47	20.15	0.92	14.58	15.50	0.70	Imperceptible	Neglible	0.17	Imperceptible	Neglible
40	361452.5	397637.5	4.82	5.64	15.47	18.38	0.58	14.58	15.16	5.15	6.02	15.47	18.57	0.63	14.58	15.21	0.48	Imperceptible	Neglible	0.12	Imperceptible	Neglible
41	361381	397582.9	5.96	6.97	15.47	19.05	0.74	14.58	15.32	6.36	7.44	15.47	19.29	0.80	14.58	15.38	0.60	Imperceptible	Neglible	0.15	Imperceptible	Neglible
42	361355.2	397501.4	4.81	5.63	15.47	18.38	0.60	14.58	15.18	5.15	6.02	15.47	18.57	0.65	14.58	15.23	0.48	Imperceptible	Neglible	0.12	Imperceptible	Neglible
43	361266.9	397409	7.00	8.19	15.47	19.67	0.87	14.58	15.45	7.48	8.75	15.47	19.95	0.94	14.58	15.52	0.70	Imperceptible	Neglible	0.17	Imperceptible	Neglible
44	361291.5	397410.6	5.47	6.40	15.47	18.76	0.68	14.58	15.26	5.85	6.84	15.47	18.99	0.73	14.58	15.31	0.57	Imperceptible	Neglible	0.14	Imperceptible	Neglible
45	361247.4	397315.2	5.99	7.00	15.47	19.07	0.70	14.58	15.28	6.41	7.50	15.47	19.32	0.76	14.58	15.34	0.63	Imperceptible	Neglible	0.15	Imperceptible	Neglible
46	361277.3	397313	5.78	6.77	15.47	18.95	0.67	14.58	15.25	6.21	7.27	15.47	19.2	0.73	14.58	15.31	0.63	Imperceptible	Neglible	0.15	Imperceptible	Neglible
47	361244.9	397269.1	8.01	9.37	15.47	20.26	0.79	14.58	15.37	8.60	10.06	15.47	20.6	0.87	14.58	15.45	0.85	Imperceptible	Neglible	0.19	Imperceptible	Neglible
48	361241.7	397252	9.24	10.81	15.47	20.97	0.79	14.58	15.37	9.95	11.64	15.47	21.38	0.87	14.58	15.45	1.03	Small	Neglible	0.21	Imperceptible	Neglible
49	361239.4	397222.4	10.46	12.24	15.47	21.68	0.85	14.58	15.43	11.38	13.31	15.47	22.2	0.95	14.58	15.53	1.30	Small	Neglible	0.26	Imperceptible	Neglible
50	361213.6	397125.8	6.27	7.33	15.47	19.24	0.72	14.58	15.30	6.71	7.85	15.47	19.5	0.78	14.58	15.36	0.65	Imperceptible	Neglible	0.15	Imperceptible	Neglible
51	361169.4	397115.5	8.05	9.42	15.47	20.28	0.92	14.58	15.50	8.64	10.10	15.47	20.62	0.99	14.58	15.57	0.85	Imperceptible	Neglible	0.20	Imperceptible	Neglible
52	361050.2	396995.9	13.42	15.70	15.35	23.25	1.46	15.59	17.05	13.89	16.25	15.35	23.51	1.52	15.59	17.11	0.65	Imperceptible	Neglible	0.14	Imperceptible	Neglible
53	361053.4	397023.9	10.91	12.76	15.47	21.93	1.15	14.58	15.73	11.42	13.37	15.47	22.23	1.21	14.58	15.79	0.75	Imperceptible	Neglible	0.15	Imperceptible	Neglible
East Lancs Road (A580)																						
54	361430.2	396952.6	8.68	10.15	15.35	20.53	1.26	15.59	16.85	8.84	10.35	15.35	20.63	1.28	15.59	16.87	0.25	Imperceptible	Neglible	0.06	Imperceptible	Neglible
55	361570.2	396893.5	7.62	8.92	15.35	19.92	1.10	15.59	16.69	7.76	9.08	15.35	20	1.12	15.59	16.71	0.20	Imperceptible	Neglible	0.05	Imperceptible	Neglible
56	361861.2	396876.6	5.73	6.71	15.35	18.8	0.76	15.59	16.35	5.84	6.84	15.35	18.87	0.77	15.59	16.36	0.18	Imperceptible	Neglible	0.04	Imperceptible	Neglible
57	361951	396881	7.07	8.27	15.35	19.59	0.85	15.59	16.44	7.20	8.42	15.35	19.67	0.87	15.59	16.46	0.20	Imperceptible	Neglible	0.04	Imperceptible	Neglible
58	362018.8	396877.8	8.10	9.48	15.51	20.35	0.84	14.78	15.62	8.24	9.65	15.51	20.43	0.86	14.78	15.64	0.20	Imperceptible	Neglible	0.05	Imperceptible	Neglible
59	361987.6	396941	17.19	20.11	15.35	25.35	1.78	15.59	17.37	17.46	20.42	15.35	25.5	1.82	15.59	17.41	0.37	Imperceptible	Neglible	0.09	Imperceptible	Neglible
60	362018	396938.2	25.13	29.41	15.51	29.77	2.13	14.78	16.91	25.49	29.82	15.51	29.95	2.17	14.78	16.95	0.45	Imperceptible	Neglible	0.10	Imperceptible	Neglible
61	362078.3	396887.6	11.49	13.44	15.51	22.3	1.10	14.78	15.88	11.69	13.67	15.51	22.42	1.13	14.78	15.91	0.30	Imperceptible	Neglible	0.06	Imperceptible	Neglible

			Scenario D 2018 Without Development							Scenario E 2018 With Development											
Receptor Name	X	Y	Modelled NOx	Adjusted NOx (x1.17)	Backgroun d NO2	**Total NO2**	Modelled PM10	Backgroun d PM10	**Total PM10**	Modelled Nox	Adjusted NOx (x1.17)	Backgroun d NO2	**Total NO2**	Modelled PM10	Backgroun d PM10	**Total PM10**	% change NO2	magnitude of change	descriptor	% change PM10	magnitude of change	descriptor
Kenyon Lane / Newton Lane junction (																						
65	362217.4	396852.3	10.75	12.58	15.51	21.88	1.01	14.78	15.79	11.02	12.89	15.51	22.04	1.04	14.78	15.82	0.40	Imperceptible	Neglible	0.08	Imperceptible	Neglible
66	362249.9	396801.2	12.02	14.06	15.51	22.61	1.03	14.78	15.81	12.28	14.37	15.51	22.76	1.06	14.78	15.84	0.38	Imperceptible	Neglible	0.07	Imperceptible	Neglible
67	362280.7	396794.1	23.74	27.78	15.51	29.04	1.95	14.78	16.73	24.23	28.35	15.51	29.29	2.00	14.78	16.78	0.63	Imperceptible	Neglible	0.12	Imperceptible	Neglible
68	362269.2	396755.5	32.21	37.69	15.51	33.39	2.29	14.78	17.07	32.52	38.05	15.51	33.54	2.32	14.78	17.10	0.37	Imperceptible	Neglible	0.08	Imperceptible	Neglible
69	362277.6	396736.1	20.23	23.67	15.51	27.16	1.56	14.78	16.34	20.45	23.93	15.51	27.28	1.59	14.78	16.37	0.30	Imperceptible	Neglible	0.06	Imperceptible	Neglible
70	362250.7	396680.2	5.48	6.41	15.51	18.81	0.60	14.78	15.38	5.54	6.49	15.51	18.85	0.61	14.78	15.39	0.10	Imperceptible	Neglible	0.02	Imperceptible	Neglible
71	362265.7	396704.9	7.91	9.26	15.51	20.24	0.82	14.78	15.60	8.01	9.37	15.51	20.3	0.83	14.78	15.61	0.15	Imperceptible	Neglible	0.03	Imperceptible	Neglible
72	362296.4	396728.4	11.78	13.78	15.51	22.47	1.02	14.78	15.80	12.00	14.04	15.51	22.59	1.04	14.78	15.82	0.30	Imperceptible	Neglible	0.06	Imperceptible	Neglible
73	362319.7	396695.3	4.94	5.78	15.51	18.49	0.50	14.78	15.28	5.04	5.89	15.51	18.55	0.52	14.78	15.30	0.15	Imperceptible	Neglible	0.03	Imperceptible	Neglible
74	362326	396718.9	11.60	13.57	15.51	22.37	1.34	14.78	16.12	11.92	13.95	15.51	22.55	1.38	14.78	16.16	0.45	Imperceptible	Neglible	0.11	Imperceptible	Neglible
75	362302.2	396739.8	19.74	23.10	15.51	26.9	1.60	14.78	16.38	20.21	23.64	15.51	27.15	1.65	14.78	16.43	0.63	Imperceptible	Neglible	0.12	Imperceptible	Neglible
76	362290.3	396758.7	25.96	30.38	15.51	30.2	1.95	14.78	16.73	26.34	30.81	15.51	30.39	1.99	14.78	16.77	0.48	Imperceptible	Neglible	0.10	Imperceptible	Neglible
77	362296.4	396769.5	22.06	25.81	15.51	28.14	1.75	14.78	16.53	22.37	26.17	15.51	28.31	1.78	14.78	16.56	0.42	Imperceptible	Neglible	0.08	Imperceptible	Neglible
78	362299.8	396820.7	18.79	21.99	15.51	26.38	1.73	14.78	16.51	18.99	22.22	15.51	26.49	1.75	14.78	16.53	0.27	Imperceptible	Neglible	0.05	Imperceptible	Neglible
79	362314	396847.1	20.01	23.41	15.51	27.04	1.68	14.78	16.46	20.18	23.61	15.51	27.13	1.70	14.78	16.48	0.23	Imperceptible	Neglible	0.05	Imperceptible	Neglible
East Lanes Road / Nerwton Road junct																						
80	362378.1	396863.8	14.64	17.13	15.51	24.09	1.28	14.78	16.06	14.79	17.30	15.51	24.17	1.29	14.78	16.07	0.20	Imperceptible	Neglible	0.04	Imperceptible	Neglible
81	362393.2	396876.3	15.20	17.78	15.51	24.4	1.35	14.78	16.13	15.36	17.97	15.51	24.49	1.37	14.78	16.15	0.23	Imperceptible	Neglible	0.05	Imperceptible	Neglible
82	362424.4	396890.9	16.93	19.80	15.51	25.36	1.51	14.78	16.29	17.12	20.04	15.51	25.47	1.53	14.78	16.31	0.27	Imperceptible	Neglible	0.06	Imperceptible	Neglible
83	362465.7	396892.6	15.63	18.29	15.51	24.64	1.40	14.78	16.18	15.82	18.51	15.51	24.75	1.43	14.78	16.21	0.27	Imperceptible	Neglible	0.06	Imperceptible	Neglible
84	362447.3	396892.6	16.44	19.24	15.51	25.09	1.46	14.78	16.24	16.64	19.47	15.51	25.25	1.49	14.78	16.27	0.40	Imperceptible	Neglible	0.06	Imperceptible	Neglible
85	362499	396893.1	14.55	17.02	15.51	24.03	1.34	14.78	16.12	14.73	17.23	15.51	24.14	1.36	14.78	16.14	0.27	Imperceptible	Neglible	0.05	Imperceptible	Neglible
86	362538.2	396893.2	12.11	14.17	15.51	22.66	1.24	14.78	16.02	12.27	14.35	15.51	22.75	1.26	14.78	16.04	0.23	Imperceptible	Neglible	0.05	Imperceptible	Neglible
87	362586.1	396942.6	16.13	18.87	15.51	24.91	1.95	14.78	16.73	16.35	19.13	15.51	25.04	1.98	14.78	16.76	0.32	Imperceptible	Neglible	0.08	Imperceptible	Neglible
88	362523.6	396943.4	18.76	21.94	15.51	26.36	2.00	14.78	16.78	19.00	22.23	15.51	26.49	2.03	14.78	16.81	0.32	Imperceptible	Neglible	0.08	Imperceptible	Neglible
89	362487.1	396943.5	20.70	24.22	15.51	27.41	2.09	14.78	16.87	20.96	24.53	15.51	27.55	2.12	14.78	16.90	0.35	Imperceptible	Neglible	0.08	Imperceptible	Neglible
90	362459.6	396976.3	16.62	19.44	15.51	25.24	1.55	14.78	16.33	16.81	19.66	15.51	25.29	1.57	14.78	16.35	0.13	Imperceptible	Neglible	0.06	Imperceptible	Neglible
96	362411.2	396967.1	22.87	26.75	15.51	28.57	2.09	14.78	16.87	23.11	27.04	15.51	28.7	2.12	14.78	16.90	0.32	Imperceptible	Neglible	0.07	Imperceptible	Neglible
DT159	362640	396905	12.73	14.90	15.51	23.01	1.56	14.78	16.34	12.90	15.10	15.51	23.11	1.58	14.78	16.36	0.25	Imperceptible	Neglible	0.06	Imperceptible	Neglible
Newton Road																						
91	362505.8	397037.4	9.70	11.35	15.01	20.79	1.02	14.22	15.24	9.81	11.48	15.01	20.86	1.04	14.22	15.26	0.18	Imperceptible	Neglible	0.04	Imperceptible	Neglible
92	362544.6	397105.3	9.41	11.01	15.01	20.62	1.04	14.22	15.26	9.50	11.12	15.01	20.68	1.05	14.22	15.27	0.15	Imperceptible	Neglible	0.03	Imperceptible	Neglible
93	362520	397117.7	10.61	12.41	15.01	21.32	1.17	14.22	15.39	10.71	12.53	15.01	21.38	1.19	14.22	15.41	0.15	Imperceptible	Neglible	0.03	Imperceptible	Neglible
94	362475.2	397058	11.54	13.51	15.01	21.85	1.22	14.22	15.44	11.66	13.65	15.01	21.92	1.24	14.22	15.46	0.18	Imperceptible	Neglible	0.04	Imperceptible	Neglible
95	362437.2	397004.2	16.98	19.86	15.01	24.91	1.57	14.22	15.79	17.15	20.07	15.01	25.01	1.60	14.22	15.82	0.25	Imperceptible	Neglible	0.05	Imperceptible	Neglible
97	362344.2	396974.7	13.86	16.22	15.51	23.65	1.25	14.78	16.03	14.07	16.46	15.51	23.77	1.28	14.78	16.06	0.30	Imperceptible	Neglible	0.06	Imperceptible	Neglible
98	362294.4	396961.8	15.55	18.20	15.51	24.6	1.40	14.78	16.18	15.82	18.51	15.51	24.74	1.43	14.78	16.21	0.35	Imperceptible	Neglible	0.08	Imperceptible	Neglible
DT158	362747	397290	8.62	10.08	15.01	20.16	0.99	14.22	15.21	8.69	10.17	15.01	20.21	1.00	14.22	15.22	0.13	Imperceptible	Neglible	0.02	Imperceptible	Neglible
Development Site																						
101	361699.5	397122.9								2.57	3.00	15.47	17.03	0.33	14.58	14.91						
102	361377.6	397122.7								2.93	3.43	15.47	17.25	0.37	14.58	14.95						
103	361386.1	397293.1								2.32	2.72	15.47	16.88	0.28	14.58	14.86						
104	361702.4	397304.8								1.89	2.21	15.47	16.62	0.23	14.58	14.81						
105	361527.4	397503.7								1.81	2.12	15.47	16.57	0.22	14.58	14.80						
106	361812.5	396995.5								5.31	6.21	15.35	18.55	0.72	15.59	16.31						
107	361644.4	396998.3								4.88	5.71	15.35	18.3	0.68	15.59	16.27						
108	361537.8	397203.8								2.08	2.43	15.35	16.62	0.26	15.59	15.85						